

# CHARACTERISTICS OF THE JOB DEMANDS OF HEALTHCARE WORKERS IN DIFFERENT SEGMENTS OF THE HEALTHCARE SECTOR

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## Abstract

**Citation:** Bachanovikj M. Characteristics of the job demands of healthcare workers in different segments of the healthcare sector. Arch Pub Health 2023; 15 (1). 33-51.

doi.org/10.5889/aph.2023.6096

**Key words:** healthcare workers, demographic characteristics, job characteristics, job demands, job resources.

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**Received:** 20-Feb-2023; **Revised:** 22-Jun-2023;

**Accepted:** 25-Jun-2023; **Published:** 30-Jun-2023

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**Competing Interests:** The author have declared that no competing interests

Healthcare workers are exposed to various demands at their workplace (physical, psychological, social or organizational aspects of work) that impose constant physical and/or psychological effort on a worker. The aim of this study was to determine the characteristics of the job demands of healthcare workers in different segments of the health sector in RNM, categorized into three groups: healthcare workers in hospital activity, healthcare workers in outpatient activity and technical support and administrative staff. Material and methods: This is a cross-sectional descriptive-analytical study, in which 418 employees participate, classified into three groups according to their work tasks in health institutions: healthcare workers in hospital activity, healthcare workers in outpatient activity and technical support and administrative staff. The statistical analysis has been done in statistical programs: STATISTICA 12.0; IBM SPSS Statistics 20.0, and the processed data are presented in tabular forms. Results: The difference among the three groups of respondents in terms of the following demographic characteristics and job characteristics: gender, marital status, type of employment contract, total years of service, length of service at the current workplace and number of working hours per week, is insignificant, i.e. the three groups of respondents are homogeneous on these issues. The average value of the physical job demands at the level of the entire analyzed sample is significantly higher compared to the average values of all other job demands. The most common job demands for each of the groups (physical, organizational, emotional and cognitive job demands) have been determined, and a comparison has been made among the three groups of respondents regarding the most significant job demands. Conclusions: The difference registered in the physical job demands in relation to the three groups of respondents is statistically significant. Healthcare workers in hospital activity, compared to the technical support and administrative staff and the healthcare workers in outpatient activity, are more exposed to the different types of job demands. The higher average values of the physical job demands among respondents employed in hospital activity and outpatient activity in relation to technical support and administrative staff are also highlighted.

## ЈАВНО ЗДРАВЈЕ

# КАРАКТЕРИСТИКИ НА БАРАЊАТА НА РАБОТА КАЈ ЗДРАВСТВЕНИТЕ РАБОТНИЦИ ВО РАЗЛИЧНИ СЕГМЕНТИ НА ЗДРАВСТВЕНИОТ СЕКТОР

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## Извадок

**Цитирање:** Бачановиќ М. Карактеристики на барањата на работа кај здравствените работници во различни сегменти на здравствениот сектор. Арх Ј Здравје 2023;15(1) 33-51.

doi.org/10.5889/aph.2023.6096

**Клучни зборови:** здравствени работници, демографски карактеристики, карактеристики на работата, барања на работно место, ресурси на работно место.

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**Примено:** 20-фев-2023; **Ревидирано:** 22-јун-2023;

**Прифатено:** 25-јун-2023; **Објавено:** 30-јун-2023

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**Конкурентски интереси:** Авторот изјавува дека нема конкурентски интереси.

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## Introduction

Due to the fact that healthcare workers are people engaged in specific activities with the primary goal of preserving and improving people's health may provide direct patient care and service delivery (doctors, nurses, psychologists, social workers, laboratory technicians, etc.) or indirect care (accountants, drivers, administrators, foremen, equipment maintainers, drug distribution, service planners, and even medical waste management)<sup>1</sup>. According to the Law on Health Protection, health care is an activity of public interest, which is carried out in health facilities as a public service that provides health care<sup>2</sup>. Healthcare workers are the key actors in the process of implementation of health care measures and activities in order to provide health services to the patients according to their needs, as well as best medical practice in different health care settings<sup>3</sup>. They have a great responsibility towards human life and health, and at the same time, they are exposed to various psychosocial risks that come from the requirements and conditions of the workplace. These risks include various aspects of work and the work environment, such as the organizational climate or culture, interpersonal relationships, and the design and content of workplace activities<sup>3</sup>. Psychosocial risks at the workplace are related to stress occurrence, burnout syndrome, harassment (mobbing), and violence at the workplace. At the same time, the negative consequences are present not only at an

individual level (e.g. psychosomatic disorders in the worker) and at an organizational level (level of work productivity, absenteeism, and presenteeism, increased number of injuries and accidents at work, etc.) but also at the level of social community and national economies (economic losses)<sup>4</sup>.

It is important to note that in the last few years the pressure on medical personnel, especially on doctors, has increased in many countries as a result of various healthcare reforms that affect the autonomy of doctors, imposing more administrative burdens and professional requirements for continuous improvement<sup>5</sup>.

Job demands and job resources are the main elements of the Job Demand-Resources Model (JD-R)<sup>6-8</sup> which is used in this research. The central assumption of the JD-R Model is that whereas every occupation has its own specific job risk factors (characteristics) that affect organizational outcomes, including employee well-being, these characteristics can be classified into these two general categories—job demands and job resources. The JD-R model has been proven to have a high predictive value for employee health and well-being<sup>6-9</sup>.

Job demands, actually, refer to various physical (e.g. high levels of noise or crowding), psychological, social (e.g. interpersonal conflicts, abusive supervision) or organizational aspects of the job (e.g. interpersonal conflicts) that require prolonged physical and/or psychological (cognitive and emotional) efforts and

therefore they are associated with certain physiological and/or psychological costs in workers. Job demands are not necessarily negative, but high job demands lead to excessive strain when the invested personal efforts are high, which depletes the energy of the worker (emotional exhaustion) and it affects the reduced engagement of the individual at work (energy overload process)<sup>7-9</sup>.

On the other hand, job resources as mental, physical, social and organizational aspects of work that provide functionality in the achievement of work goals, reduce job demands and related physical and/or psychological costs and stimulate personal growth, learning as well as employee development. Lack of resources at work can lead to changes in behaviour manifested as distancing/negative attitude towards work or cynicism (depersonalization) and disengagement from the work process (motivational process). When the organizational context is presented through adequate work resources, such as proper feedback, supervisor and co-worker support as well as teamwork, high levels of work engagement can be observed among employees, as well as low levels of depersonalization. On the other hand, in the context of reduced job resources (e.g. inadequate feedback, low salary, job insecurity, inadequate supervisory coaching, and poor teamwork), job demands are particularly detrimental<sup>6-9</sup>. Hence, job satisfaction and good interpersonal relationships can have a protective function against the

impact of stress<sup>10</sup>.

Additionally, the problem of psychosocial risks among healthcare workers has worsened as a result of the global public health crisis caused by the COVID-19 pandemic. Research has shown that during the COVID-19 pandemic, stress and burnout syndrome among healthcare workers increased<sup>11</sup>. Lack of health personnel, long working hours without adequate rest periods, and shortages of personal protective equipment lead to fatigue and non-adherence to infection prevention and control measures.<sup>12</sup> Some studies suggest that infection prevention and control measures reduce the autonomy of healthcare workers and contribute to their exhaustion and occurrence of burnout syndrome<sup>13</sup>.

The aim of this paper is to determine the characteristics of the requirements of the workplace for employees in different segments of the health sector in RNM, categorized into three groups depending on their work tasks in health institutions: healthcare workers in hospital activity, healthcare workers in outpatient activity and employees who are not healthcare workers (technical support and administrative staff).

## Material and methods

The paper is a cross-sectional descriptive-analytical study. Employees in health facilities in RNM were surveyed through Google Forms (a cloud-based data management tool used for designing and developing

online questionnaires). The survey was conducted during June - October 2022. Participants were asked to complete the questionnaires online and were encouraged to invite new respondents from their contacts. A total of 418 employees in health facilities filled out questionnaires. The respondents were categorized into three groups depending on their work tasks in health institutions: healthcare workers (doctors, specialist doctors, nurses/technicians/laboratory workers) in hospital activity - 200 respondents, healthcare professionals (doctors, specialist doctors, nurses/technicians/laboratory technicians) in outpatient activity -166 respondents and employees in the hospital activity and in outpatient activity who are not healthcare professionals, i.e. technical support and administrative staff)- 52 respondents. The respondents were informed about the objectives of this research, and their participation was anonymous as well as on a voluntary basis.

In order to determine the demographic characteristics and job characteristics of employees in different segments of the health sector in RNM, specially designed questionnaires were used to obtain relevant data of research interest.

The data on the demographic characteristics, as well as the job characteristics of the respondents, i.e. gender, age, education degree, marital status, profile description of the workplace, type of activity, type of institution where they work, total

years of service, length of service at the current workplace, type of employment contract, number of working hours per week, night shift work, work with patients infected with COVID-19, have been obtained from the Questionnaire on demographic characteristics and job characteristics specially designed for the needs of the research through analysis of the literature and the methods used in other similar studies, consisting of 14 questions.

Data on job demands have been obtained with the help of Job Demands Questionnaire specially designed for conducting research through a review and analysis of instruments that have been used in studies in this field<sup>14</sup>, consisting of 28 questions relating to different types of job demands: physical (the fast pace of work, the responsibility for a large number of patients, the lack of personnel, the lack of equipment and materials for work, the burden of administrative activities and additional tasks in the conditions of the COVID-19 pandemic), organizational (the strict hierarchical arrangements of superiors, poor communication between departments, unclear and ambiguous roles and work tasks, frequent changes to rules and regulations in the health facility, the unfair management in the department, the influence of the media on the bad image of healthcare workers from the specific facility and problematic communication among departments in the context of the COVID -19 pandemic), emotional (lack of coopera-

tion with colleagues, high competition among colleagues, problems in communication with patients, inadequate handling of negative feelings during work, fear of making a mistake during work and conflict between demands home and work environment, inadequate handling of negative feelings during the COVID-19 pandemic) and cognitive job demands (lack of feedback on work results, decision-making under time pressures, insufficient participation in decision-making, obligation to train new employees, as well as decision-making during lack of necessary information and decision-making under time pressures during the COVID-19 pandemic). In doing so, the respondents gave points for each statement according to a Likert scale on which there are five ratings from 1 for “hardly ever” to 5 for “always”. The scores given for the statements have been summed and an average value was calculated for the physical, organizational, emotional, and cognitive job demands.

The statistical analysis has been done in statistical programs: STATISTICA 12.0; IBM SPSS Statistics 20.0, and the processed data are presented in tabular form.

## Results

The average age of all respondents included in the survey is 41 years with a standard deviation of 10.9. Among the respondents, the percentage representation of the female gender is higher at 81.8% compared to the male respondents at 18.2%. Most of the participants in this study have university degrees-120 (28.7%). Most respondents are married or they live with their partner - 301 (72%). In terms of job position, i.e. the profile, the most represented healthcare workers are nurses with 45.7%, compared to doctors with 25.4%. According to the type of activity performed by most of the respondents, 200 (47.9%) engaged in hospital activity. A large part of the respondents work at University Clinics 134 (32.1%) and they mostly work in internal medicine (101). The largest percentage of participants in the study are employed with a contract for an indefinite period of time (90%), provide direct patient care (57.9%), and do not work in night shift (69.1%). Most respondents worked with patients infected with COVID-19, i.e. 285 (68.2%). The average value length of total years of service among the respondents is 15.8 years, the average value length of service at the current workplace is 11.2 years, and the average number of working hours among the respondents per week is 41 hours.

**Table 1.** Differences among the three groups of respondents in terms of the average values of age, total years of service, years of service at the current workplace, and the number of working hours per week

Q1 age	average	standard deviation	
technical support and administrative staff	43.1	10.02478	F=2.250028 p=0.106681
healthcare workers in outpatient activity	41.8	11.90639	
healthcare workers in hospital activity	40.0	10.34842	
Q8 total years of service			
technical support and administrative staff	16.9	10.14649	F=0.482186 p=0.617780
healthcare workers in outpatient activity	16.0	11.77178	
healthcare workers in hospital activity	15.3	10.38351	
Q9 length of service at the current workplace			
technical support and administrative staff	11.2	8.54753	F=0.021899 p=0.978340
healthcare workers in outpatient activity	11.3	10.03802	
healthcare workers in hospital activity	11.1	9.70520	
Q10 number of working hours per week			
technical support and administrative staff	39.4	7.018909	F=2.596865 p=0.075717
healthcare workers in outpatient activity	40.6	6.627504	
healthcare workers in hospital activity	41.9	8.912478	

The difference between the three groups of respondents in terms of the average age is insignificant, it is  $43.1 \pm 10.0$  for technical support and administrative staff, as well as it is the lowest among healthcare workers in hospital activity  $-40.0 \pm 10.3$  (table 1).

The longest total length of years of service is registered among respondents who work in technical support and administrative staff  $16.9 \pm 10.1$ , the shortest among healthcare workers in hospital activity  $15.3 \pm 10.4$ , the difference among the three groups of respondents in relation to the average value of length of total years of service is insignificant (table 1).

The difference that is recorded between the three groups of respondents in terms of the average value

of the length of service at the current workplace is significant. It is  $11.2 \pm 8.5$  referring to technical support and administrative staff, healthcare workers in hospital activity  $-11.1 \pm 9.7$  and healthcare workers in outpatient activity  $-11.3 \pm 10.0$  (table 1).

The largest number of working hours per week is registered among healthcare workers in hospital activity  $-41.9 \pm 8.9$ , and the lowest number of working hours per week is observed among respondents who are technical support and administrative staff  $39.4 \pm 7.0$ , the difference among the three groups of respondents in terms of the average value of the number of working hours per week is insignificant (table 1).

**Table 2.** Display the demographic characteristics of the respondents in the three groups

Q2 gender	technical support and administrative staff	healthcare workers in the outpatient activity	healthcare workers in hospital activity	Pearson Chi-square p
male	11	27	38	0.80873 p=.667399
female	41	139	162	
<b>Q3 education degree</b>				
Secondary vocational education	17	26	43	61.6617 p=0.0000
Three-year vocational studies	3	19	64	
University degree	21	50	49	
Specialization	2	55	32	
Master's degree/Ph.D.	9	16	12	
<b>Q4 marital status</b>				
not married	8	40	45	6.34015 p=0.386184
married/ not married, but you live with your partner	38	118	145	
divorced	5	6	6	
widow/er	1	2	4	
<b>Q11 type of employment contract</b>				
indefinite period of time	45	152	179	0.579874, p=.748311
definite period of time	4	9	14	
<b>Q13 night shifts</b>				
yes	1	26	102	76.3952, p=0.0000
no	51	140	98	
<b>Q14 work with patients infected with COVID-19</b>				
yes	14	105	166	62.9048 p=0.000
no	38	61	34	

The three groups of respondents (healthcare workers in hospital activity, healthcare workers in the outpatient activity, and technical support and administrative staff) do not differ significantly from each other in terms of gender, marital status, and type of employment contract

( $p=0.667399$ ,  $p=0.386184$ ,  $p=0.748311$ ) (table 2).

But they differ significantly from each other in terms of the level of education, night shifts, as well as work with patients infected with COVID-19 (table 2).

**Table 3.** Average values of the key variables in the total sample - job demands

Job demands	average	standard deviation	
physical demands	3.335825	0.848541	F=142.4379 p=0.00
organizational demands	2.546480	0.902322	
emotional demands	2.153110	0.741874	
cognitive demands	2.558214	0.892616	

In general, referring to the level of the entire examined group, the average value of physical demands is 3.3 and it is significantly higher compared to the average values of all other job demands – organizational (2.5), emotional (2.1), and cognitive (2.6) for  $p < 0.05$  (table 3).

The average value of emotional demands (2.1) is significantly lower versus the average values of all other job demands - physical, organizational, and cognitive for  $p < 0.055$  (table 3).

**Table 4.** Differences among the three groups of respondents in terms of job demands

physical demands	Average	standard deviation	
technical support and administrative staff	2.983173	0.795217	F=11.97362 p=0.000009
healthcare workers in outpatient activity	3.213855	0.882281	
healthcare workers in hospital activity	3.528750	0.786757	
<b>organizational demands</b>			
technical support and administrative staff	2.357143	0.847046	F = 2.279282 p=0.103638
healthcare workers in outpatient activity	2.501721	0.954725	
healthcare workers in hospital activity	2.632857	0.864827	
<b>emotional demands</b>			
technical support and administrative staff	2.038462	0.754931	F=1.627208 p=0.197728
healthcare workers in outpatient activity	2.111876	0.709350	
healthcare workers in hospital activity	2.217143	0.762273	
<b>cognitive demands</b>			
technical support and administrative staff	2.368590	1.036027	F=1.749684 p=0.175109
healthcare workers in outpatient activity	2.539157	0.895728	
healthcare workers in hospital activity	2.623333	0.845760	

The average value of the physical job demands at the workplace is the highest among healthcare workers in hospital activity (3.5, sometimes), and the lowest among technical support and administrative staff

(2.9, rarely). The difference that is registered in the physical demands in relation to the three groups of respondents (healthcare workers in hospital activity, healthcare workers in outpatient activity and tech-



nical support and administrative staff) is statistically significant for  $p > 0.05$  (table 4).

The average value of organizational demands is the highest among healthcare workers in hospital activity (2.6, rare), and the lowest among technical support, and administrative staff (2.3, rare). The difference registered in the organizational demands in relation to the three groups of respondents is statistically insignificant for  $p > 0.05$  (table 4).

The average value of emotional job demands is the highest among healthcare workers in hospital ac-

tivity (2.2, rare), and the lowest among technical support and administrative staff (2.0, rare). The difference registered in the emotional demands in relation to the three groups is statistically insignificant for  $p > 0.05$  (table 4).

The average value of cognitive job demands is the highest among healthcare workers in hospital activity (2.6, rare), and the lowest among healthcare workers in outpatient activity (2.5, rare). The difference registered in the cognitive demands in relation to the three groups of respondents is statistically insignificant for  $p > 0.05$  (table 4).

**Table 5.** Presentation of the average values of the physical job demands in relation to the three groups of respondents

	responsibility for a large number of patients			the fast pace of work			a health facility is in a very noisy area			burdened of administrative activities		
	average	N	SD.	average	N	SD.	average	N	SD.	average	N	SD.
technical support and administrative staff	2.5	52	1.4	3.2	52	1.3	2.8	52	1.3	4.0	52	1.2
healthcare workers in outpatient activity	3.4	166	1.6	3.5	166	1.3	2.8	166	1.4	3.8	166	1.2
healthcare workers in hospital activity	4.1	200	1.2	4.0	200	0.9	3.2	200	1.3	3.6	200	1.4
	lack of personnel			lack of supplies necessary for work			lack of equipment and materials for work			additional tasks in the conditions of the COVID-19 pandemic		
technical support and administrative staff	3.4	52	1.4	2.8	52	1.2	2.5	52	1.3	2.5	52	1.4
healthcare workers in outpatient activity	3.4	166	1.5	2.9	166	1.4	2.6	166	1.3	3.4	166	1.5
healthcare workers in hospital activity	3.9	200	1.2	3.2	200	1.3	2.8	200	1.2	3.3	200	1.5

The average values of the answers of all respondents for the statements within the framework of the physical job demands are ordered according to their importance for the respondents: in the first place are the fast pace of work and the burden of administrative activities, then comes the responsibility for a large number of patients and the lack of staff, the additional tasks in the conditions of the COVID-19 pandemic, the lack of supplies necessary for work, the lack of equipment and materials for work (table 5).

As the most significant physical job demands within the group of technical support and administrative staff, the following stand out: the burden of administrative activities, the lack of personnel, and the fast pace of work (table 5).

According to the obtained results, within the group of healthcare work-

ers in outpatient activity, the most significant physical job demands stand out the burden of administrative activities, the fast pace of work and the responsibility for a large number of patients (table 5).

As the most significant physical demands within the group of healthcare workers in hospital activity, the following stand out: the responsibility for a large number of patients, the fast pace of work, and the lack of supplies necessary for work (table 5).

The average values of the physical job demands in relation to the three groups of respondents (healthcare workers in hospital activity, healthcare workers in outpatient activity and technical support and administrative staff), are significantly higher among respondents employed in hospital activity and in the outpatient activity compared to technical support, and administrative staff (table 5).

**Table 6.** Presentation of the average values of the organizational job demands in relation to the three groups of respondents

	strict hierarchical arrangement of superiors			poor communication among departments			unclear and ambiguous roles and work tasks			frequent changes to rules and regulations in the health facility		
	average	N	SD.	average	N	SD.	average	N	SD.	average	N	SD.
technical support and administrative staff	2.3	52	1.3	2.5	52	1.3	2.0	52	1.2	2.2	52	1.2
healthcare workers in outpatient activity	2.3	166	1.3	2.5	166	1.4	2.1	166	1.3	2.5	166	1.4
healthcare workers in hospital activity	2.6	200	1.3	2.4	200	1.3	2.1	200	1.2	2.5	200	1.3

	unfair management in the department			influence of the media on the bad image of healthcare workers from the specific facility			problematic communication among departments in the context of the COVID-19 pandemic		
	mean	n	sd	mean	n	sd	mean	n	sd
technical support and administrative staff	1.9	52	1.9	3.3	52	0.9	2.2	52	1.1
healthcare workers in outpatient activity	2.1	166	2.1	3.4	166	1.2	2.5	166	1.4
healthcare workers in hospital activity	2.2	200	2.2	3.9	200	1.1	2.8	200	1.4

The average values of the answers of all respondents to the statements within the organizational job demands are ordered according to their significance for the respondents: the influence of the media on the bad image of the healthcare workers from the specific facility, problematic communication among departments in the context of the COVID-19 pandemic, the frequent changes of the rules and regulations in the health facility, the strict hierarchical arrangement of superiors, poor communication among departments, the unclear and ambiguous roles and tasks and unfair management in the department (table 6).

The most significant organizational job demands within the group of technical support and administrative staff stand out: the influence of the media on the bad image of healthcare workers from the specific institution, poor communication among departments, and frequent changes to the rules and regulations in the health institution (table 6).

According to the results obtained within the group of healthcare workers in outpatient activity, the most significant organizational job

demands stand out: the influence of the media on the bad image of healthcare workers from the specific institution, problematic communication among departments in the conditions of the COVID-19 pandemic and poor communication among departments (table 6).

The following stand out as the most significant organizational job demands within the group of healthcare workers in hospital activity: influence of the media on the bad image of healthcare workers from the specific facility, problematic communication among departments in the conditions of the COVID-19 pandemic, poor communication among departments and the frequent changes of the rules and regulations in the health facility (table 6).

The average value of the difference of the organizational job demands is insignificantly higher among healthcare workers in hospital activity compared to technical support and administrative staff and healthcare workers in outpatient activity. The difference in the organizational demands is significantly higher among healthcare workers in hospital ac-

tivity compared to technical support and administrative staff and healthcare workers in outpatient activity about these organizational demands: influence of the media on the bad image of healthcare workers from the specific facility and problematic communication among departments in the context of the COVID-19 pandemic (table 6).

The average values of the responses of all respondents to the statements within the emotional job demands are ordered according to their importance for the respondents: the conflict between demands in the home and work environment, the high competition among colleagues, inadequate handling of negative feelings during the COVID-19 pandemic, the problems in communication with patients, the fear of making a mistake during the work and the lack of cooperation with colleagues.

As the most significant emotional job demands within the group of technical support and administrative staff, the following stand out: the conflict between demands in the home and work environment, the high competition among colleagues, and the fear of making a mistake during the work.

According to the obtained results, within the group of healthcare workers in outpatient activity, the most significant emotional job demands stand out: the conflict between demands in the home and work environment, the high competition among colleagues and the problems in communication with patients.

The most significant emotional job demands within the group of healthcare workers in hospital activity stand out: the conflict between demands in the home and work environment, the high competition among colleagues and the inadequate handling of negative feelings during the COVID-19 pandemic.

The average value of the differences in emotional job demands are insignificant among healthcare workers in hospital activity, technical support and administrative staff and healthcare workers in outpatient activity. The difference is significant in the emotional job demands and it is significantly higher among healthcare workers in hospital activity compared to healthcare workers in outpatient activity in terms of emotional job demand - problems in communication with patients.

The average values of the responses of all respondents to the statements within the cognitive job demands are ordered according to the importance of the respondents: the obligation to train new employees, decision-making under the time pressures, decision-making under time pressures during the COVID-19 pandemic, the lack of feedback on work results, and decision-making in the absence of necessary information and insufficient participation in decision-making.

As the most significant cognitive job demands within the group of technical support and administrative staff, the following are highlighted: the obligation to train new employees, making decisions under time

pressure and the lack of feedback on work results.

According to the results obtained within the group of healthcare workers in outpatient activity, the most significant cognitive job demands stand out: the obligation to train new employees, decision-making under time pressures during the COVID-19 pandemic, decision-making under the time pressures and making decisions in the absence of the necessary information.

As the most significant cognitive demands of the workplace within the group of healthcare workers in hospital activity, the following stand out: the obligation to train new employees, decision-making under time pressures during the COVID-19 pandemic, and decision-making under time pressures.

The difference in the average value of the cognitive job demands is insignificant among healthcare workers in hospital activity, technical support and administrative staff, and healthcare workers in outpatient activity. The difference is significant in the cognitive job demands and is significantly higher among healthcare workers in hospital activity compared to technical support and administrative staff about these cognitive demands: obligation to train new employees and make decisions under the time pressures during the COVID-19 pandemic.

## Discussion

The difference among the groups in terms of the following demographic

characteristics and job characteristics: gender, marital status, type of employment contract, total years of service, length of service at the current workplace, and number of working hours per week is insignificant, i.e. the three groups of respondents on these issues are homogeneous.

Healthcare workers play a central role in health systems, which is certainly confirmed mainly during the Covid-19 pandemic, referring to the lack of health personnel reported as the most common cause of disorders in providing basic health services<sup>15</sup>. Vulnerability in the medical profession stems from psychosocial health problems, organizational requirements, and health care requirements<sup>16,17</sup>.

Employees in the different segments of the health sector are faced with different types of job demands. The types of job demands and job resources depend on the characteristics of the healthcare institution (e.g. University Clinic, Clinical Hospital, General Hospital, Health Center, etc.) and the job characteristics, i.e. the profile of the worker (e.g. a doctor, a nurse, technical support and administrative staff, etc.). The fact that some worker profiles provide direct patient care and service delivery and are in everyday immediate communication with patients, and others are not, refers to differences in the work process, workplace tasks, work organization, and different disadvantages and risks to which different workers' profiles are exposed<sup>18</sup>.

Employees deal with the following job demands on a daily basis: physical, emotional, organizational, and cognitive. Thus, the results of a study by Mijakoski conducted in two hospitals (University Surgery Clinic and General Hospital) in RNM show the presence of the highest average values for all types of job demand among the surgeons and operating room nurses from both analyzed health institutions<sup>18</sup>. In a similar study conducted to examine differences in burnout, job demands, and teamwork between Macedonian and Croatian hospital nurses, Croatian nurses have reported higher levels of organizational job demands (e.g. strict hierarchy, ambiguous roles, problematic communication) and emotional job demands (e.g. lack of cooperation, high competitiveness among colleagues, emotional involvement in work), while Macedonian nurses have reported higher levels of physical job demands (e.g. excessive workload, time pressure, lack of staff and materials) which is obviously a consequence of their difficult goal - workload (Croatian hospital - 250 beds with 250 employed nurses, while the Macedonian hospital - 500 beds and 230 employed nurses)<sup>19</sup>.

In this context, the findings of the current study, show that at the level of the entire examined group, the average value of physical job demands (3.3, sometimes) is significantly higher compared to the average values of all other job demands - organizational, emotional, and cognitive. Furthermore, it has been established that the average value

of emotional job demands (2.1) is significantly lower versus the average values of all other job demands - physical, organizational, and cognitive for  $p < 0.055$ .

The average values of the answers of all respondents for the statements within the framework of the physical job demands are ordered according to their importance for the respondents: in the first place are the fast pace of work and the burden of administrative activities, then comes the responsibility for a large number of patients and the lack of staff, the additional tasks in the conditions of the COVID-19 pandemic, the lack of supplies necessary for work, the lack of equipment and materials for work (table 5). In the three groups of respondents (healthcare workers in hospital activity, healthcare workers in outpatient activity and technical support and administrative staff) as the most significant physical job demand is the fast pace of work, but the groups differ in terms of the exposure to the other physical job demands. The difference registered in the physical job demands in relation to the three groups of respondents is statistically significant for  $p > 0.05$ .

The average values of the physical job demands in relation to the three groups of respondents are significantly higher among respondents, healthcare workers in hospital activity and healthcare workers in outpatient activity compared to technical support and administrative staff, which means that healthcare workers in hospital activity and

healthcare workers in outpatient activity experience the physical job demands more seriously compared to the technical support and administrative staff. This confirms the differences in the characteristics of job demands depending on which segment of the healthcare sector the respondents are involved in.

The average values of the answers of all respondents to the statements within the organizational job demands are ordered according to their significance for the respondents: the influence of the media on the bad image of the healthcare workers of the specific facility, problematic communication between departments in the context of the COVID-19 pandemic, the frequent changes of the rules and regulations in the health facility, the strict hierarchical arrangement of superiors, poor communication among departments, the unclear and ambiguous roles and tasks and unfair management in the department (table 6). In the three groups of respondents (healthcare workers in hospital activity, healthcare workers in outpatient activity and technical support and administrative staff) the most significant organizational job demand is the influence of the media on the bad image of the healthcare workers from the specific facility. The difference registered in the organizational job demands in relation to the three groups of respondents is statistically insignificant for  $p > 0.05$ .

The average value of the difference of the organizational job demands is

insignificantly higher among healthcare workers in hospital activity compared to technical support and administrative staff and healthcare workers in outpatient activity. The difference in the organizational demands is significantly higher among healthcare workers in hospital activity compared to technical support and administrative staff and healthcare workers in outpatient activity about these organizational demands: influence of the media on the bad image of healthcare workers from the specific facility and problematic communication among departments in the context of the COVID-19 pandemic (table 6).

In the following, the average values of the responses of all respondents to the statements within the emotional job demands are ordered according to their importance for the respondents: the conflict between demands in the home and work environment, the high competition among colleagues, inadequate handling of negative feelings during the COVID-19 pandemic, the communication problems with patients, the fear of making a mistake during the work and the lack of cooperation with colleagues. In the three groups of respondents (healthcare workers in hospital activity, healthcare workers in the outpatient activity and technical support and administrative staff) the most significant emotional job demands are the conflict between the demands in the home and work environment as well as the great competition among colleagues. The difference registered in the emotional job demands in

relation to the three groups of respondents is statistically insignificant for  $p > 0.05$ .

The average value of the differences in emotional job demands is insignificant among healthcare workers in hospital activity, technical support and administrative staff, and healthcare workers in outpatient activity. The difference is significant in the emotional job demands and it is significantly higher among healthcare workers in hospital activity compared to healthcare workers in outpatient activity in terms of emotional job demand - communication with patients.

In the end, the average values of the responses of all respondents to the statements within the cognitive job demands are ordered according to their importance to the respondents: the obligation to train new employees, decision-making under time pressures, decision-making under time pressures during the COVID-19 pandemic, the lack of feedback on work results and decision-making in the absence of necessary information and insufficient participation in decision-making.

In the three groups of respondents (healthcare workers in hospital activity, healthcare workers in outpatient activity, and technical support and administrative staff) the most significant cognitive job demand are the obligation to train new employees, decision-making under the time pressures during the COVID-19 pandemic and decision-making under the time pressures. The difference registered in the cognitive job

demands in relation to the three groups of respondents is statistically insignificant for  $p > 0.05$ . The difference in the average value of the cognitive job demands is insignificant among healthcare workers in hospital activity, technical support and administrative staff, and healthcare workers in outpatient activity. The difference is significant in the cognitive job demands and it is significantly higher among healthcare workers in hospital activity compared to technical support and administrative staff about these cognitive demands: obligation to train new employees and make decisions under the time pressures during the COVID-19 pandemic.

These findings lead to the conclusion that healthcare workers in hospital activity are more exposed to the different types of job demands compared to technical support and administrative staff and healthcare workers in outpatient activity, therefore that healthcare workers in hospital activity and healthcare workers in outpatient activity are more exposed to the physical job demands compared to technical support and administrative staff.

Hence, it follows that the physical job demands should not be neglected, because of the findings similar to those in the current study have also been obtained in other studies. In that context, in research conducted in two hospitals (University Surgery Clinic and General Hospital) in RNM, the physical job demands among respondents of the university surgical clinic are sig-



nificantly higher compared to other job demands, and they are also significantly higher compared to the physical job demands among respondents of the general hospital. Another study, also study conducted in RNM in order to examine differences in burnout, job demands, and teamwork among healthcare workers employed in a general hospital, during two periods of time (2011 and 2014) showed that the levels of physical job demands (increased workload, increased number of patients served and complex administration procedures) were consistently higher compared to the levels of other job demands<sup>20</sup>.

As has been stated previously, high job demands drain workers' mental and physical resources resulting in emotional exhaustion. These job demands affect employee well-being and performance. Various studies confirm the relationship between job demands and reduced productivity<sup>21</sup> and work-related stress, increased medical malpractice<sup>22</sup> as well as mental health disorders in healthcare workers, mainly depression and anxiety<sup>23-25</sup>.

## Conclusions

The results of this study show that the difference among the examined groups in terms of demographic characteristics and job characteristics are insignificant, that is to say, the three groups of respondents are homogeneous in terms of these issues.

Regarding the most common job demands, the findings show that at the

level of the entire examined group, the average value of physical job demands is significantly higher compared to the average values of all other job demands – organizational, emotional, and cognitive. The difference registered in the physical job demands in relation to the three groups of respondents is statistically significant for  $p > 0.05$ .

These results indicate higher average values of the physical job demands among healthcare workers in hospital activity and healthcare workers in the outpatient activity compared to technical support and administrative staff.

The knowledge that has been obtained about the characteristics of job demands of healthcare workers in different segments of the healthcare sector is the basis for proposing and developing strategies as well as preventive measures at organizational and individual levels.

## References

1. Joseph B, Joseph M. The health of the healthcare workers. *Indian J Occup Environ Med.* 2016; 20(2):71-72.
2. Law on Health Protection. *Official Gazette of the Republic of Macedonia.* Available at [www.zdravstvo.gov.mk](http://www.zdravstvo.gov.mk)
3. Karadzinska-Bislimovska J, Vera B, Mijakoski D, Minov J, Stoleski S, Angeleska N et al. Linkages between workplace stressors and quality of care from health professionals' perspective – Macedonian experience. 2013; 19(2):425-41.

4. Karadzinska-Bislimovska J, Mijalkov B, Grunevska V, et al. Specific occupational risks among health workers - infectious and psychosocial harms. Project no. 40116101/0. Skopje: Ministry of Education and Science; 2004.
5. Pejušković B, Lečić-Toševski D, Priebe S, Tošković, O. Burnout syndrome among physicians – the role of personality dimensions and coping strategies. *PsychiatrDanub.* 2011; 23(4):389-95.
6. Bakker AB, Demerouti E. The Job Demands-Resources model: State of the art. *Journal of Managerial Psychology.* 2007;22(3), 309–328.
7. Demerouti E, Bakker AB, Nachreiner F, Schaufeli WB. The job demands-resources model of burnout. *J Appl Psychol.* 2001; 86(3):499-512.
8. Demerouti E, Bakker A. The Job demands-resources model: Challenges for future research. *SA Journal of Industrial Psychology.* 2011.
9. Schaufeli WB, Bakker AB. Job demands, job resources, and their relationship with burnout and engagement: a multi-sample study. *J Organiz Behav.* 2004; 25(3):293 – 315.
10. Finset KB, Gude T, Hem E, Tysen R, Ekeberg O, Vaglum P. Which young physicians are satisfied with their work prospective nationwide study in Norway. *BMC Medical Education.* 2005; 5(1):19.
11. Salari N, Khazaie H, Hosseini-an-Far A, Khaledi-Paveh B, Kazeminia M, Mohammadi M, et al. The prevalence of stress, anxiety and depression within front-line healthcare workers caring for COVID-19 patients: a systematic review and meta-regression. *Human resources for health.* 2020; 18(1):100.
12. Trepanowski N, Larson RA, Evers-Meltzer R. Occupational dermatoses among front-line health care workers during the COVID-19 pandemic: A cross-sectional survey. *Journal of the American Academy of Dermatology.* 2020; 84(1):223-225.
13. Bearman G, Hota SS, Haessler SD. Physician burnout and healthcare epidemiology: dual implications worthy of greater scrutiny. *Infect Control Hosp Epidemiol.* 2020; 41(2):250-251.
14. Montgomery AJ, Panagopolou E, Benos A. Work-family interference as a mediator between job demands and job burnout among doctors. *Stress and Health,* 2006; 22(3), 203–212.
15. WHO. Second round of the national pulse survey on continuity of essential health services during the COVID-19 pandemic. Geneva: World Health Organization, 2021. Available from: Second round of the national pulse survey on continuity of essential health services during the COVID-19 pandemic (who.int). Accessed: January 20, 2023

16. Rushton CH, Batcheller J, Schroeder K, Donohue P. Burnout and resilience among nurses practicing in high-intensity settings. *Am J Crit Care*. 2015; 24(5):412-20.
17. Huetsch M, Green J. Responding to emotional stress in pediatric hospitals: Results from a national survey of chief nursing officers. *J Nurs Adm*. 2016; 46(7-8):385-392.
18. Mijakoski D. Burnout Syndrome in different profiles of health-care workers in surgery. PhD thesis.2013; Faculty of Medicine, Ss. Cyril and Methodius in Skopje, Republic of North Macedonia.
19. Mijakoski D, Karadzinska-Bislimovska J, Milosevic M, Mustajbegovic J, Stoleski S, Minov J. Differences in burnout, work demands and team work between Croatian and Macedonian hospital nurses. *Cognition, Brain, Behavior*. 2015; 19(3):179-200.
20. Mijakoski D, Karadzhinska-Bislimovska J, Stoleski S, et al. Job Demands, burnout, and teamwork in healthcare professionals working in a general hospital that was analysed at two points in time. *Open Access Maced J Med Sci*. 2018; 6(4):723-729.
21. KazmiR , Amjad S, Khan D. Occupational stress and its effect on job performance. A case study of medical house officers of district Abbottabad. *J Ayub Med Coll, Abbottabad: JAMC*. 2008; 20(3):135-139.
22. Fahrenkopf AM, Sectish, TC, BargerLK, SharekPJ, Lewin D, ChiangVW et al. Rates of Medication Errors among Depressed and Burnt out Residents: Prospective Cohort Study. *BMJ*. 2008; 336(7642):488-91.
23. Toral-Villanueva R, Aguilar-Madrid G, Juarez-Perez CA. Burnout and patient care in junior doctors in Mexico City. *Occup Med (Lond)*. 2009; 59(1):8-13.
24. Galaiya R, Kinross J, Arulampalam T. Factors associated with burnout syndrome in surgeons: a systematic review. *Ann R CollSurg Engl*. 2020; 102(6):401-407.
25. Cai W, Lian B, Song X., Hou T, Deng G, Li H. A cross-sectional study on mental health among health care workers during the outbreak of Corona Virus Disease 2019. *Asian Journal of Psychiatry*. 2020; 51:102111.