RAP CONFERENCE PROCEEDINGS, VOL. 9, PP. 102–108, 2024
ISSN 2737-9973 (ONLINE) | DOI: 10.37392/RAPPROC.2024.20
RAP-PROCEEDINGS.ORG

BURNOUT SYNDROME AMONG MEDICAL STAFF IN THE DISTRICT OF BOR

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Abstract. *Introduction. Stress is any abnormal reaction of the human organism that manifests itself in psychological and physical symptoms and behavioral responses due to attempts to adapt the organism to a sudden, unpleasant influence. It is assumed that stress is a functional state of disturbed equilibrium of the organism and a short-term psychophysiological state that occurs in response to external and internal factors. Occupational stress is often experienced by professionals in certain professions, including healthcare workers. Burnout is a state of excessive stress and a complex human response to long-term exposure to stress. The signs are similar to stress, but burnout also includes emotional exhaustion and an increasingly negative attitude towards work and even life. The research aims to determine the current intensity of burnout among healthcare workers. Research methodology. A modified questionnaire on burnout among healthcare workers and a questionnaire on socio-demographic data specifically designed for this research were used for the study. Data processing included descriptive statistics and hypothesis tests. The results of the study show that there is no statistically significant difference between the manifestation of stress in the basic group of respondents (emergency medical service) and the control groups (general practice service, pediatric pharmacy). Such a result contradicts many other studies from the literature (American Medical Association). When interpreting the results obtained, we believe that the reason for this could be the size of the sample, as well as the fact that a larger area (Timočka Krajina) was covered. Likely, we would then find a difference in work stress in the EMS and control groups. Burnout syndrome in primary care in Bor is more pronounced than we predicted. We had expected burnout syndrome to be more pronounced in the ambulance service than in the pediatric and general medical service. Conclusion. The statistically processed results of our study show that healthcare staff in primary care are exposed to an approximate level of stress, regardless of where they work or what function they perform. With combined efforts and support, we can overcome the challenges and create a working environment that promotes our well-being and enjoyment of our daily work.*

Keywords: *stress, healthcare professionals, burnout, medical professions, work environment*

1. INTRODUCTION

Health is often defined as complete psychological, mental, and social well-being, not just the absence of disease or infirmity (WHO). Health can also be understood as a functional norm: the ability of an individual to fulfill his or her role in society [1]. This view ignores important dimensions of an individual's condition, such as their ability to act and work, life satisfaction, and well-being. Furthermore, health depends on the perception of stress, effort, and the ability to cope with stress [2]. Stress can be defined as a general non-specific reaction of the body caused by unfavorable and harmful influences from the external and internal environment. The medical definition of stress emphasizes that stress is a natural phenomenon that occurs when the organism tries to adapt to a life situation or event. In this sense, stress is any maladaptive, poor response of the organism that occurs due to an attempt to adjust the organism to a sudden, unpleasant influence and is manifested by mental and physical symptoms that can lead to the onset of illness (WHO).

It is assumed that stress is not a pathological condition, but a functional state with disturbed body balance and short-term psychophysiological disturbances. It can be understood as a reaction to external and internal factors and is described as a state on the border between health and illness. The stress response has a protective character that aims to mobilize all the body's resources to protect itself from unfavorable and harmful influences [3]. Health depends, among other things, on the perception of stress, the efforts, and the means to cope with it [2].

Life stress is related to events in daily life or the family. Developmental stress is associated with life crises and certain phases in a person's life, such as starting school, puberty, adolescence, employment, marriage, retirement, and the like.

Physical stress is usually caused by certain changes in the body, i.e. mechanical and physical effects of various factors, such as earthquakes, sudden changes in temperature, noise, vibrations, etc. Biological stress can be caused by biological factors, such as multiple types of pathogenic microorganisms, then various injuries, dehydration of the organism due to certain disorders and diseases, hunger, disturbances of biological

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rhythms, the toxic effect of many pollutants in the living and working environment, etc. Environmental stress can manifest itself when adapting to a new geographical and climatic environment. Urban stress occurs when adapting to the urban environment, and acculturation stress occurs when adapting to a different culture.

Sudden and unexpected life events, dangerous situations, conflicts, etc. cause psychological stress. Factors of a social nature, such as sudden social changes, social crises, interpersonal conflicts, revolutions, robberies, persecutions, and wars can cause social stress... The term psychosocial stress is also frequently found and defined in the literature and is increasingly used to include both the psychological and social components of stress that usually occur together.

Accidental stress refers to emergencies or sudden events: Natural disasters, traffic accidents, breakdowns, deaths in the family, loss of property, loss of job, and the like. Developmental stress is related to life crises and certain phases in a person's life, such as starting school, puberty, adolescence, employment, marriage, retirement, and the like. Developmental stress is associated with life crises and certain phases in a person's life, such as starting school, puberty, adolescence, employment, marriage, retirement, and the like.

Occupational stress is related to the work a person does. Occupational stress is a phenomenon often experienced by professionals in certain professions, including healthcare workers. This type of stress represents for a professional a series of harmful, physiological, psychological, and behavioral reactions to situations in which the demands of work do not match their abilities, skills, and needs [4]. When we talk about healthcare workers, they are confronted with stress even before the start of an employment relationship, i.e. already during training and especially during the performance of their medical and healthcare activities. The most important are the health consequences that can occur in the form of accidents at work, and a drop in immunity leading to various psychosomatic illnesses [5].

The factors that most often affect the occurrence of stress are personal expectations, family pressure, misunderstandings from the environment, a large number of obligations at work, problems in reconciling private obligations and work, lack of free time, difficulties in organizing time, suffering and death of patients, stress related to competitiveness [6].

Eustress can occur if the stress reaction remains within the limits of the protective function (warning). Still, distress already represents a stress reaction accompanied by harmful consequences for the organism. Emotional disorders associated with stress are nervousness, frustration, depression, listlessness, anxiety, forgetfulness, fatigue, and increased consumption of nicotine, alcohol, and drugs. Work-related symptoms include injuries at work, team disunity, decreased productivity, absenteeism, difficulty understanding workflow, long breaks, and a lot of time spent on the internet and on the phone. The consequences of stress at work can be cognitive, where a reduced ability to learn, think, and solve problems can be observed. Emotional consequences can take the form of aggression, apathy, anxiety, and loneliness. Then there are the effects on productivity, which can manifest in reduced work performance. The most important are the health consequences that can occur in the form of accidents at work, a drop in immunity, and various psychosomatic illnesses [5].

Burnout is thought to be a complex human response to long-term stress and not just a simple, momentary condition that leads to acute, excessive stress levels [7]. Burnout includes emotional exhaustion, but also an increasingly negative attitude toward work or life [8]. As a result of long-term stress exposure, burnout in humans can manifest clinically through a range of physical and psychological symptoms such as headaches, palpitations, high blood pressure, lack of willpower or apathy, hopelessness, powerlessness, depersonalization, anxiety, aggressiveness, anger, irritability, and reduced concentration and attention to performance in professional work tasks [9].

The groups with the highest risk of being constantly exposed to and accumulating stress include professions that involve helping others, especially healthcare workers (doctors, nurses, etc.). Ambitious people who strive for perfectionism are particularly prone to this syndrome. They have unrealistically high expectations and assessments of themselves and their progress and work in all areas. Conflicts related to the professional role lead to emotional fatigue, and an ambivalent attitude towards work, less support from colleagues, and low business acumen leading to a feeling of lowered self-esteem and low personal performance [10].

Burnout syndrome is a global problem in the medical population [11]. This problem occurs at all stages of their training, professional development, and clinical practice. The prevalence of burnout syndrome among medical students is estimated at 40% to 76%. The results of a meta-analysis that included 17431 medical students showed a prevalence of 44.2% [12].

A meta-analysis that included physicians in specialization showed a prevalence of burnout syndrome of 35.7%. When comparing different specialties, the highest frequency was recorded among specialists in surgery, anesthesia, gynecology, and orthopedics [13]. In a 2018 study of a large sample of 15000 American physicians, burnout syndrome was documented in 42% of respondents [14]. A study conducted in 2022 by the American Medical Association (AMA) shows that the highest percentage of workplace burnout during that year occurred in the following areas of medicine: emergency care or urgent care (62%), family medicine (58%), pediatrics (55%), obstetrics and gynecology (54%), internal medicine (52%) [15].

Medical assistants who specialize in certain areas of medicine are also more prone to burnout than others due to the different work environments and patient populations [11]. The highest rates of workplace burnout among medical technicians are found in the following work areas: Intensive Care Unit (ICU) [16], and Emergency Medical Services (EMS) [17].

The study aims to determine the current intensity of burnout among employees in primary health care.

2. METHODOLOGY OF THE STUDY

The sample included 20 employees of the emergency medical service of the health center in Bor (baseline group) and 20 employees, of health workers (opportunity sample) of the pediatric pharmacy and general medical service in Bor (control group). A modified questionnaire on burnout of healthcare workers at work (basic version, downloaded from the website: https://www.mdpi.com) [18] and a questionnaire on socio-demographic data created specifically for this research were used for the study.

The data collection and survey were conducted in November 2023. Participation was voluntary. It was emphasized that it was an anonymous questionnaire and that the data obtained would be used exclusively for scientific purposes, to develop a plan and methods to reduce occupational stress and burnout syndrome in healthcare workers. The questionnaire consisted of two parts: general and socio-demographic data about the subject and assessment of stress intensity. 8 men aged 32 to 57 and 12 women aged 27 to 59 working in emergency medical services took part in the study. The stress level of the medical staff at work was rated on a scale from 0 to 5.

Data processing: based on the principle of descriptive statistics and testing of the hypothesis. Basic hypothesis: There is a statistically significant difference in the extent of job burnout between the base group (EMS staff) and the two control groups (staff in general medicine and in the pediatric pharmacy) in favor of the base group. Null hypothesis: There is no statistically significant difference between the baseline group and the control group.

Statistical analysis was performed in the Statistical Package for Social Sciences, version 23.0 for Windows (SPSS Inc. Chicago, Illinois, United States). The probability level (p) of < 0.05 was considered significant. The results are shown graphically and in tables.

3. RESULTS AND DISCUSSION

Biochemical observation of the consequences and physiology of stress suggests that cortisol secretion increases up to 20-fold a few minutes after the onset of a stressful event. The secretion of corticotropin-releasing factor and adrenocorticotropic hormone (CRF and ACTH) is in a direct negative feedback loop with plasma cortisol levels, but stressful stimuli are stronger and can always overcome the cortisol feedback effect. Stress leads to increased activity of the sympathetic nervous system and the release of adrenaline and noradrenaline hormones. The mentioned hormones lead to a reaction in the whole organism that improves its ability to perform strenuous physical work, which is accompanied by clinical manifestations of the entire organism: blood pressure increases, heart rate and respiration accelerate, blood flow to active muscles increases and to organs not involved in motor activity decreases, as well as the increase of glucose levels in the blood, glycolysis in the liver and muscles, muscle strength and mental activity [4].

Hans Selye, who developed the concept of the General Adaptation Syndrome (GAS), which is also considered one of the classic "physiological" models of stress, is generally regarded as the father of the modern understanding of stress. Burnout syndrome at work should first be distinguished from stress. The difference lies in the duration, as stress is a temporary condition, whereas work burnout syndrome is a process that lasts longer and has the characteristics of a chronic disorder.

Burnout syndrome at work should be distinguished from depression. The difference from depressive disorder is that burnout syndrome relates to the professional sphere and not to other areas of a person's life, because, at least at the beginning of the process, the symptoms are only due to the situation at work. At the same time, burnout syndrome at work relates exclusively to the content of work, which is the opposite of depression, which can relate to all areas of a person's life. Work burnout syndrome should also be distinguished from job dissatisfaction, which may present some of the symptoms that are characteristic of this syndrome [19].

The baseline research group consisted of 20 healthcare workers, of whom 13 were female and 7 were male respondents. In the control group, there were a total of 20 healthcare workers, of whom 12 were female and 8 were male respondents. In terms of the distribution of training, 13 female and 7 male respondents answered the questionnaire in the emergency medical service. In the control group, 12 women and 8 men answered the questionnaire.

Table 1. Presentation of the results of the questionnaire on burnout of healthcare workers at work

Ordinal number	*Base group EMS*	*General medical practice (The first control group)*	*Pediatric pharmacy (The second control group)*
1.	34	6	29
2.	35	15	5
3.	25	33	27
4.	10	27	14
5.	17	9	31
6.	9	4	23
7.	27	11	11
8.	15	33	22
9.	45	3	30
10.	2	18	28
11.	3		
12.	30		
13.	25		
14.	38		
15.	22		
16.	32		
17.	17		
18.	35		
19.	12		
20.	31		
X	23.2	15.9	22
SD	12.138	11.50	9
CV	52.3%	72.3%	49%

As the coefficient of variation for all three groups (baseline, first control, second control) is above 30%, a non-parametric method was used to test for statistically significant differences - the Kruskal Wallis test.

P (O, 1C, 2C) = 0.3036

H = 2.384, the probability of the null hypothesis is greater than 0.05, which means that there is no statistically significant difference between the baseline group, the first control group, and the second control group in the level of the score expressing the extent of burnout at work.

P (B, 1C) = 0.1245 - there is no statistically significant difference in burnout at work between the baseline group and the first control group.

P (B, 2C) = 0.7153 - there is no statistically significant difference in workplace burnout between the baseline and the second control group.

P (1B, 2C) = 0.3104 - there is no statistically significant difference in burnout at work between the first control group and the second control group.

Respondents from the emergency medical service, the general medical service, and the pediatric outpatient clinic show approximate burnout at work.

Table 2. Display of summary results based on answers in the survey related to burnout syndrome at work in healthcare institutions

	Mean±sd	**Vari-ance**	**t**	**Chi-Square Tests (χ^2)**
Age	2.40 ± 1.057	1.118	14.057	
Rate your health	2.55 ± 1.154	1.331	13.706	17.353
Gender	1.23 ± 0.423	0.179	17.572	
How often do you feel emotionally exhausted?	1.70 ± 1.305	1.703	7.998	5.012
Are you satisfied with your quality of life?	0.88 ± 0.853	0.728	6.117	
What bothers you most at work?	2.85 ± 2.107	4.438	8.406	21.479
How often are you prone to illness?	1.63 ± 1.170	1.369	8.515	
Do you feel exhausted at the end of working hours?	1.80 ± 1.159	1.344	9.548	1.387

Stress is defined as the body's response to an event that a person perceives as a threat to their physical or psychological integrity. A stress reaction can occur in response to actual psychological and physical events, but also as a result of the expectation that something bad will happen. This last type of stress is referred to as "psychological" and is considered the number one cause of chronic stress in today's society. As a direct result of constant exposure to occupational stress, burnout syndrome can develop as the ultimate consequence of stress.

The World Health Organization (WHO) describes burnout syndrome as chronic stress related to the workplace that the individual cannot adequately cope with. It is characterized by a lack of energy, exhaustion, a negative attitude toward the workplace, and reduced productivity at work [20]. The term burnout syndrome was introduced in the 1970s by the American psychologist Herbert Freudenberger. He defined it as a result of occupational stress and exhaustion in the so-called helping professions, i.e. in nurses and doctors due to excessive commitment to work and the sacrifice of personal needs in the desire to help other people [21].

Medical professionals involved in certain areas of medicine are more prone to burnout than others due to the characteristic work environment and patient population. Research shows that working in emergency medical services is at the top of the list in terms of levels of workplace stress [17].

The nature of the work of emergency medical service workers involves frequent and irregular shifts, too few staff given the volume of work and the number of patients, unpredictable circumstances, and conditions [22]. Emergency medical service workers are exposed to a variety of stress factors, quick reactions, and decisions that can directly impact patients' lives, working in unsafe terrain where they are exposed to rain, snow, and other adverse weather conditions, contact with patients who are in serious medical condition, death of patients, unrealistic expectations of the family-comments and pressure from observers in the field [23]. For nurses and technicians, due to repeated exposure to stressors, the recovery period is missing and cumulative stress occurs, i.e. the body is constantly in a state of arousal and physiological stress response, and such a state becomes normal.

Due to the difficult working conditions, emergency medical service staff have a beneficial work experience. A physician who provides emergency medical assistance at the scene and during transportation has an increment of three months of prior service time, i.e. 12 months are counted as 15 months. The positions of paramedic, technician, and lead technician who assist at the scene and during transportation or provide certain emergency medical assistance themselves have an increment of two months of work experience, i.e. 12 months of work are counted as 14 months. Due to the aggravating working conditions mentioned above, healthcare professionals in emergency medical services also have an additional ten days of annual leave. In 2022, the American Medical Association (AMA) surveyed the United States of America to determine the prevalence of workplace burnout syndrome among healthcare workers.

About 13000 healthcare workers took part in the study. The data obtained from the study showed that the highest percentage of burnout in the workplace occurred among medical support staff. High levels of burnout were also observed among healthcare

professionals working in family medicine, pediatrics, obstetrics and gynecology, and internal medicine.

The study results showed no statistically significant difference between the manifestation of stress in the basic group of respondents (medical assistance service) and the control groups (general medical service, pediatric outpatient clinic). Such a result contradicts many other studies from the literature [15, 24, 17]. The reason for these results could be the size of the sample, i.e. if a larger area (Timočka Krajina) had been included, it is very likely that there would have been a difference between the stress of working in the ambulance service and the pediatric ambulance service and in the control groups.

The doctors and technicians working in the general medical service are the patients' first point of contact. Patients turn to them first with all their health problems, often with too high expectations. In general practice, there are frequently many patients in a working day. This can lead to a feeling of overload and a lack of time for each patient (usually the doctor only has 7 minutes for the examination). Communicating with patients can be a challenge, especially when dealing with anxious, nervous, or demanding patients. The shortage of medical staff is another factor that increases stress in this profession.

A graphic representation of the comparison of the results of the answers to the question "How often do you feel emotionally exhausted?" on the questionnaire among employees in healthcare institutions is shown in Figure 1.

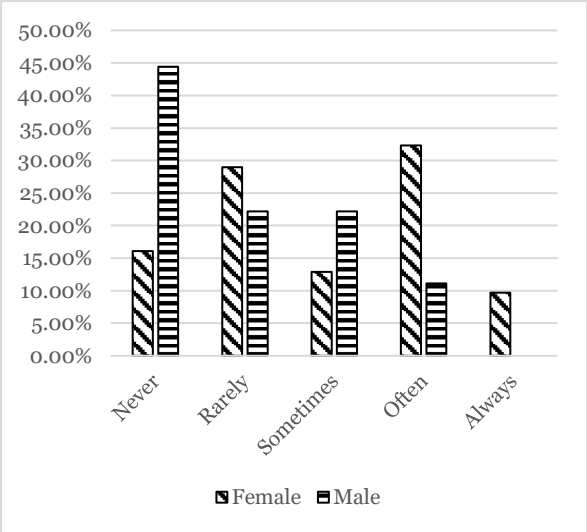

Figure 1. How often do you feel emotionally exhausted?

A graphic representation of the comparison of the results of the answers to the question "What bothers you most at work?" on the questionnaire among employees in healthcare institutions is shown in Figure 2.

The staff at the Children's Dispensary deal with a large number of sick children, and worried parents. Working with sick children or children with health problems can be emotionally draining. Working with parents can be challenging, especially if they are worried or stressed about their child's health. Lack of resources, such as a lack of medical equipment or limited access to certain medications, can make it difficult to provide help. We conclude that burnout syndrome is more prevalent in primary care in Bor than we predicted. We had expected burnout syndrome to be more prevalent in emergency medical services than in pediatric outpatient and general medical services [25]. A graphic representation of the comparison of the results of male and female answers to the question "Do you feel exhausted at the end of working hours?" on the survey questionnaire among employees in health institutions is shown in Figure 3.

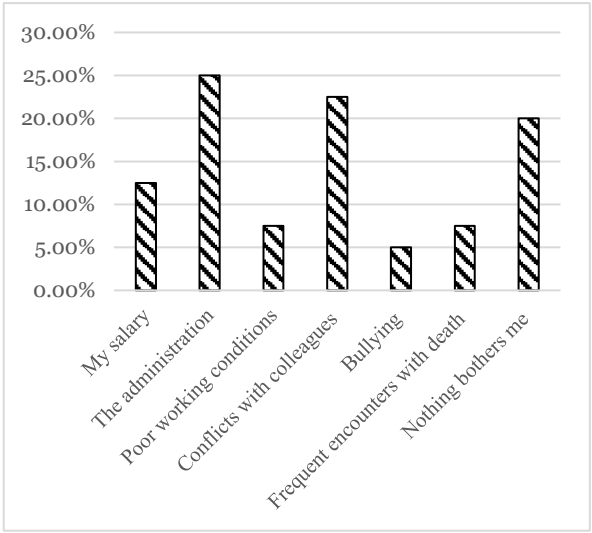

Figure 2. What bothers you most at work?

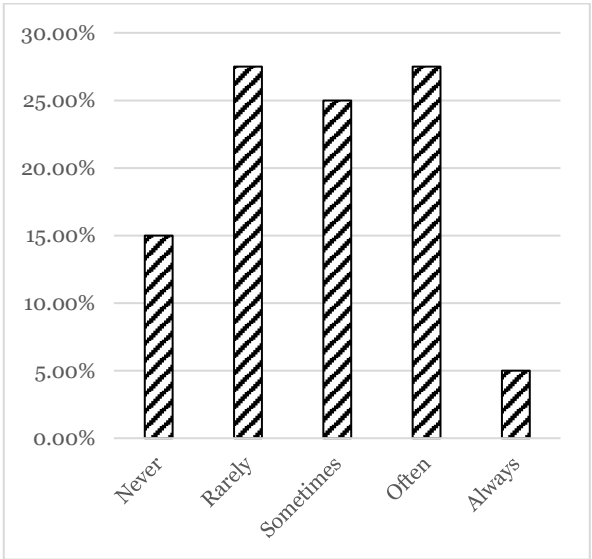

Figure 3. Do you feel exhausted at the end of working hours?

The organization of the service exposes all employees to high levels of stress, and it is precisely for this reason that it is important to take measures that help to reduce the stress levels of healthcare workers. This means that consideration should be given to

implementing stress management programs, such as organizing workshops, seminars or providing individual counseling to give employees the tools and techniques to effectively manage stress in the workplace. Support and mentoring of newly arrived employees is also necessary to help them adjust and cope with challenges in the work environment.

Management should demonstrate an understanding of the needs and challenges of healthcare workers and provide them with flexible schedules, opportunities for recovery, and work-life balance. In addition, it is important to involve employees in the decision-making process regarding their work environment and practices, which can significantly improve their engagement and job satisfaction. In terms of further research, I think it would be useful to compare stress levels between working in a primary and secondary healthcare facility. It would be interesting to compare work in the admissions and triage department and the ambulance service. Such a study would allow a deeper understanding of the differences in stress levels between different segments of the healthcare sector and the identification of specific factors that contribute to stress in healthcare workers. Based on the results of such research, it is possible to develop ideas and plans that would improve the mental health and well-being of healthcare workers in all areas of healthcare.

4. Conclusion

Stress at work and burnout are challenges that many healthcare professionals face. Every day we are confronted with high demands, unpredictable situations, and emotionally stressful circumstances that can lead to an accumulation of stress over time. This work aimed to determine the intensity of burnout among healthcare workers in primary care. The data we obtained shows that healthcare workers in primary care are exposed to high levels of stress, regardless of where they work or what function they perform. With concerted effort and support, we can overcome the challenges and create a work environment that promotes our well-being and enjoyment in the daily practice of healthcare.

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