The Burnout and Professional Deformation of Latvian Healthcare Workers during the COVID-19 Pandemic at the Traumatology and Orthopaedics Hospital

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Abstract: The COVID-19 pandemic is a global health crisis, which has created an additional burden on the healthcare system and has caused enormous stress and emotional burnout among healthcare workers (HCWs). The purpose of the study is to investigate the phenomena of emotional burnout and the professional deformation of HCWs. The emotional burnout phenomenon of the HCWs was studied using the Maslach Burnout Inventory–Human Services Survey. In addition, the Professional Deformation Survey, based on scientific literature and research works, was developed. The survey consisted of 4 subscales distinguishing: aggression, authoritarianism, demonstrativeness, and conservatism. The survey results showed a high level of emotional exhaustion, a medium level of depersonalization, and a low level of personal achievement reduction. The Professional Deformation Survey showed good reliability for the whole sample in all four subscales. Results of the professional deformation study revealed that 29% of respondents manifest aggression while performing their professional activities. Authoritarianism can be observed in 18% of respondents, demonstrativeness in—31%, and professional deformation manifested as conservatism in—22% of HCWs. Data obtained on burnout and the professional deformation of the HCWs proves that the healthcare system and health organizations have reason to be concerned about the mental well-being of HCWs and the quality of healthcare service provision.

Keywords: healthcare workers (HCWs); Burnout; professional deformation; COVID-19 pandemic

1. Introduction

A critical turning point in the healthcare system faced by healthcare workers (HCWs) was at the end of December 2019 (Zhang et al. 2020). In 2019, the coronavirus disease was first reported in Wuhan, China. On 30 January 2020, the World Health Organization declared it a public health emergency of international concern (PHEIC) (WHO 2007). The restrictions and traumatic experiences of the COVID-19 pandemic caused severe psychological trauma to society and threatened the mental health of people (US Department of Health and Human Services 2021), especially medical workers with a profession in health care (Gold 2020). The consequences of the situation directly affected the work conditions of HCWs, the quality of services provided, and the mental health of the HCWs, which created a risk of emotional burnout. Working in such conditions led to changes in the mental and physical health of individuals, including indirectly causing negative consequences related to patient care and its quality, as well as to patient safety (Richardson and Rothstein 2008).

The COVID-19 pandemic, which has spanned almost three years (WHO 2020), has become a daily reality in the professional activities of HCWs. Previous studies have shown that as a consequence of the pandemic, HCWs were exposed to; greater emotional burnout—approximately 50%, post-traumatic stress syndrome—25%, anxiety—25%, and depression—15% (Batra et al. 2020; Ching et al. 2021; Galanis et al. 2021; de Pablo et al. 2020; Sheraton et al. 2020; da Silva and Neto 2021). Furthermore, studies conducted during

the COVID-19 pandemic revealed a large increase in the number of depression and anxiety cases. An aggravation of mental health problems was observed in both the population in general and among HCWs, in particular (Spoorthy et al. 2020). A multi-country study assessing the impact of the COVID-19 pandemic on the mental health of HCWs identified that; 57.5% of the HCWs had depression, 42.0%–increased stress, and 59.1% of HCWs experienced anxiety (Ghaleb et al. 2021). A study conducted among HCWs in Jordan, in 2020, showed that occupational stress, insufficient staff and resources, fear of COVID-19 infection, and inter-professional relationships in the healthcare environment were the main factors causing emotional burnout among the HCWs (Algunmeeyn et al. 2020).

Emotional burnout is one of the most important mental health issues for HCWs that has been facilitated by the pandemic. It is characterized by physical and emotional exhaustion resulting in a significant lack of energy. If the above-mentioned condition is left untreated, it creates long-term chronic stress, which, in turn, leads to burnout (Maslach and Leiter 2016). HCWs subjected to burnout are often prone to making erroneous decisions related to their professional activities. Also, their empathy decreases and negative attitudes towards both patients and colleagues increase. A desire to change jobs and the provision of low-quality healthcare services are often observed (Dyrbye et al. 2017; Hall et al. 2016; Newman 2012; Shanafelt et al. 2002; Yuguero et al. 2017).

Therefore, more and more studies focus on improving the mental and physical health of HCWs (Brand et al. 2017).

Burnout syndrome is characterized by emotional exhaustion, depersonalization, and a reduction of personal achievements (Demerouti et al. 2001). It describes psychological pressures occurring in the professional environment, which, in turn, reduce the life quality of the HCWs and can lead to drug abuse, various physical illnesses, depression, and even death (Hyman et al. 2011). An analysis of the scientific literature clearly shows that issues of emotional burnout and professional deformation in the medical environment are insufficiently researched (Pines and Keinan 2005; Krasnov et al. 2021).

In the scientific literature, the definition of professional deformation is still actively discussed. The term is usually used in situations where there is a destructive change in an individual's professional activity. Changes in the existing personality structure negatively affect work efficiency and interactions with colleagues. Long-term occupation within the framework of one profession causes changes in the individual (Polyakova 2014). The term professional deformation was first mentioned by the American journalist Hubert Langerock in his 1915 study on the profession and its influence on personality (Langerock 1915).

The author Miller defined professional deformation as an inadequate adaptation of an individual's behavioral response to the surrounding environmental conditions (Miller 2007). The consequences of adaptation problems lead to negative changes in an individual's behavior, such as reduced professional efficiency, aggression, lowered motivation to perform work duties, destructive changes in personality, and psychosomatic diseases (De La Paz et al. 2014; Liu and Gao 2021).

Professional activity is affected by the emergence of undesirable professional characteristics, professional behaviour, and behavioural changes, as well as changes in mental health caused by the performance of professional duties (Polyakova 2014). Aggression manifests itself as a purposeful action s to cause harm to another person. It can be physical harm that is intended to cause physical pain, or it can be psychological, with the purpose of causing mental discomfort (Legkauskas 2022). In addition, healthcare workers may develop personality traits such as authoritarianism, demonstrativeness, and conservatism. Authoritarianism manifests as the power and control that an individual exercises over another individual (Farh and Cheng 2000; Pellegrini and Scandura 2008). This can be seen in medical personnel as they unilaterally make decisions related to the patient treatment process. Demonstrativeness is defined as a purposeful, conscious behavior to create a certain impression on others, with excessive self-esteem and an accentuation of the "self-image" (Usmanov 2022). Conservatism is characterized as a tendency to preserve the status quo, resistance to change, and mistrust (Rudy 2007). It is difficult for medical personnel to

change their habits and there is often resistance to new technologies. This harms the professional activity and mental health of medical personnel, as well as mutual communication with colleagues and patients.

When Kondo defined an emotional burnout phenomenon, he mentioned that it occurs because of an individual's maladaptation concerning excessive workload. The author states that burnout syndrome is more common among individuals who are too interested in their work (Carlini et al. 2016; Moss et al. 2016). The process of burnout and personality deformation is slow and difficult to notice in its early stages, but it should be seen as an overall public health problem. Therefore, it is very important to address the mental health problems of HCWs and evaluate burnout risk factors to take preventive measures as early as possible. The HCWs who are constantly tired, sleepless, emotionally exhausted, insensitive, angry, and professionally deformed are unable to provide quality medical assistance because they are working on the verge of critical exhaustion. Paying increased attention to the emotional well-being of employees working in the health sector is of crucial importance. It is necessary to tackle the issue by finding ways and opportunities to support HCWs in avoiding burnout and deforming professionally, thus enabling them to provide a quality service of care. The following research questions were raised: what level of emotional burnout do healthcare workers have at traumatology and orthopaedics hospitals? What are the signs of professional deformity in health care personnel at Traumatology and orthopaedics hospitals? What statistically significant associations and differences exist between burnout and professional strain in a sample of physicians and nurses at traumatology and orthopaedics hospitals?

2. Materials and Methods

The research was carried out as an institution-based cross-sectional study. The study was conducted at the traumatology and orthopaedics Hospital in Latvia. The data was collected in the period between 11 January 2022–30 January 2022. Ethics committee approval was obtained. Research approval no. 34/2022/1. The hospital has a total of 467 employees. 267 of them are healthcare workers—82 traumatologists—orthopaedic surgeons, 29 residents, 131 nurses and 25 nurses' assistants. Out of the total number of employees, 200 are not medical personnel—38 sanitarians and 162 technical support personnel. Out of the 267 medical personnel, 199 healthcare workers participated in this research. The completed questionnaires from four respondents from the sample were excluded since they were incomplete. 195 questionnaires were valid for the study. This makes up 73% of the hospital's healthcare workers.

The survey link was sent to all hospital employees personally through the hospital's internal e-mail. The e-mail included an invitation to participate in the study, an explanation of the purpose, and a consent form, which, when signed by the respondent, acted as an agreement to participate in the study.

The survey contained questions of informative character and two questionnaires. The survey items were arranged in a mixed order so that they did not follow each other. Data from electronically completed questionnaires were entered online and tabulated, but frontally completed survey data were manually entered into the online system with the purpose to obtain a table of total results. Data were collected and securely stored on a computer with password protection.

2.1. Instrument of Data Collection

2.1.1. The Measurement of Burnout

The Maslach Burnout Inventory (MBI), consisting of 22 statements rated on a 7-point Likert scale (0 = never, 6 = every day), was applied to carry out the study. The MBI consists of 3 subscales: emotional exhaustion (score range from 0 to 54), depersonalization (score range from 0 to 30), and reduction of personal accomplishments (score range from 0 to 49). The survey participants were asked to choose the statement that matched them. Participants were classified with a "low risk of burnout" if they chose the response option

1 or 2 and "high risk of burnout" if they chose statements from 3 to 5, as described by Rohland (Rohland et al. 2004). High scores on the emotional exhaustion and depersonalization subscales together with low scores on the personal achievement reduction subscale indicate a high level of professional emotional burnout. The MBI has been previously validated among HCWs (Rohland et al. 2004; Wallace et al. 2009; Restauri and Sheridan 2020; Cruz et al. 2019).

2.1.2. The Measurement of Professional Deformation

The survey was developed grounded in scientific literature and research work on professional deformation, presented by authors such as Miller, De La Paz et al. and Liu (Miller 2007; De La Paz et al. 2014; Liu and Gao 2021), among others. The survey was drafted per the AMEE guidelines, following the seven recommended steps related to the creation of surveys (Artino et al. 2014). First, an extensive literature review was made, enabling the formulation of a clear definition of the construct under the consideration. Google Scholar, Scopus, ScienceDirect, Cochrane, PubMed, and BMC database systems were used for the literature and research review.

The following keywords were used: "burnout", "professional deformation" AND "healthcare workers", "professional deformation" AND "healthcare workers". Further, interviews with medical experts from various fields to gain a broader understanding of the causes, signs, and consequences of professional deformation of the HCWs were conducted. The next step was to synthesize data obtained by reviewing the literature and interviewing experts. Analyzing the obtained information about the professional deformation of HCWs, the most frequently occurring causes of professional deformation among HCWs were selected. A comprehensive list of the causes of professional deformation was drafted. Furthermore, a survey consisting of 35 items and four subscales, based on the literature review and opinions of experts, was developed. Respondents were offered to agree or disagree with statements using a four-point Likert scale: agree, partially agree, partially disagree, and disagree. Each rating was assigned a certain number of points: agree—3 points, partially agree—2 points, partially disagree—1 point, disagree—0 points.

Validation of the survey was the next step taken. Various healthcare experts (doctors, nurses and administration representatives) evaluated the content of the survey. After the examination performed by the expert group, the semantic content of the items was checked by three nurses. As a result, 33 items in the survey were recognized as clearly understandable, but two as "difficult to understand". Therefore, those two items were amended. As a result, the expert group confirmed the content of the survey consisting of 35 items. Healthcare population terminology was used. After creating the survey, interviews with experts to discuss thoroughly the meaning of the proposed statements were carried out. In the end, a pilot study was conducted, where 33 HCW respondents (doctors, nurses, and administration representatives) participated. As a result, comments on the difficulties encountered while completing the survey were received, and one statement was clarified, as a respondent did not understand the essence of the question.

2.1.3. Reliability

Cronbach's alpha coefficient was calculated to find out the level of reliability for each scale of the occupational deformation survey. An analysis of the professional deformation scales showed the following results: aggression–Cronbach's alpha = 0.62, authoritarianism–Cronbach's alpha = 0.55; after removing items 9, 28, and 14, Cronbach's alpha = 0.63. Demonstrativeness–Cronbach's alpha = 0.55; after removing item 15, Cronbach's alpha = 0.60. Conservatism–Cronbach's alpha = 0.79. The above-mentioned results indicate that, after calculation, the Cronbach alpha coefficient in the scales is lowered, however acceptable, and the items are mutually consistent (Table 1).

Table 1. The reliability of the occupational deformation scales.

Scales	Cronbach's Alpha	Number of Items	Cronbach's Alpha Excluding Items
Aggression	0.62	10	
Authoritarianism	0.55	8	Excluding items 9—0.57 Excluding items 28—0.59 Excluding items 14—0.63
Demonstrativeness	0.55	10	Excluding items 15—0.60
Conservatism	0.79	7	

2.2. Statistical Analysis

To analyze the demographic data, descriptive statistics were applied. The participants of the study were categorized as having either a high or low burnout risk by using the specific burnout survey. For the Professional Deformation Survey, a content, construction, and criteria validity check was conducted under the guidance of five experts. They assessed the validity of the survey content and its relevance to the research topic. An examination of the survey structure or factor analysis and reliability test for each factor, applying Cronbach's alpha coefficient calculation, was performed. The conformity of the data to normal distribution was determined by the Kolmogorov-Smirnov Z test criteria and a calculation of the significance. A Spearman rank correlation coefficient was calculated, where the significant indicators of three subscales of the Professional Deformation Survey were sig. ≤ 0.05. Furthermore, the sample was divided into groups—physicians or residents and nurses or physician assistants. The data obtained in the sample of physicians or residents and nurses or physician assistants corresponded to a normal distribution. The Mann–Whitney *t*-test was applied to determine whether the data correspond to a normal distribution. A linear regression analysis was used to determine the quantitative relationships between variables. Data analysis was performed using SPSS 22.0 software.

3. Results

3.1. Sample Characteristics

The survey was completed by 195 HCWs. It included questions of informative character and gathered general information about a respondent: gender, age, specialty, and length of service. The average age by the group was as follows: doctors—34.2 years old, nurses—40.2 years old. The average length of service in medicine was: doctors—11.7 years, nurses—16.5 years. The distribution of respondents by specialty was: doctors 37% (*n* = 73), nurses 63% (*n* = 122).

3.2. Questionnaire Reliability

3.2.1. An Analysis of the Maslach Burnout Inventory (MBI)

Results of the MBI showed high indicators of emotional exhaustion (42) and depersonalization (10), while the reduction of personal achievements for the HCWs was at a low level (43). The HCWs demonstrated a high level of emotional burnout, moderate depersonalization, and a low level of reduction of personal achievements. The results of the respondents' burnout are depicted in Figure 1.

The calculation of the Kolmogorov-Smirnov K-S test on the professional burnout scale showed the following—emotional exhaustion $z = 0.79$, $p = 0.546$, depersonalization $z = 0.82$, $p = 0.500$, personal achievement reduction $z = 0.95$, $p = 0.318$. The results of all the scales corresponded to the normal distribution of the obtained data.
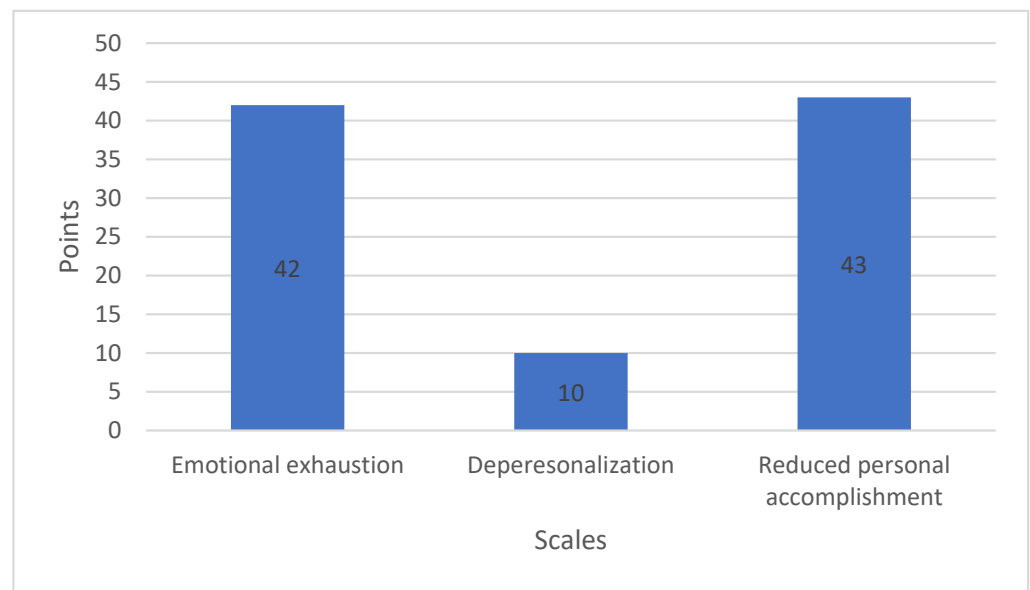
Figure 1. The indicators of respondents' burnout *(N = 195)*.

3.2.2. An Analysis of the Professional Deformation Survey

Figure 2 shows the professional deformation data for the entire sample. It was observed that 29% of the respondents showed aggression in performing their professional activities. Authoritarianism could be observed among 18% of the surveyed respondents. Demonstrativeness manifested itself among 31% of respondents, and conservatism was a form of professional deformation in 22%. The results can be seen in Figure 2.
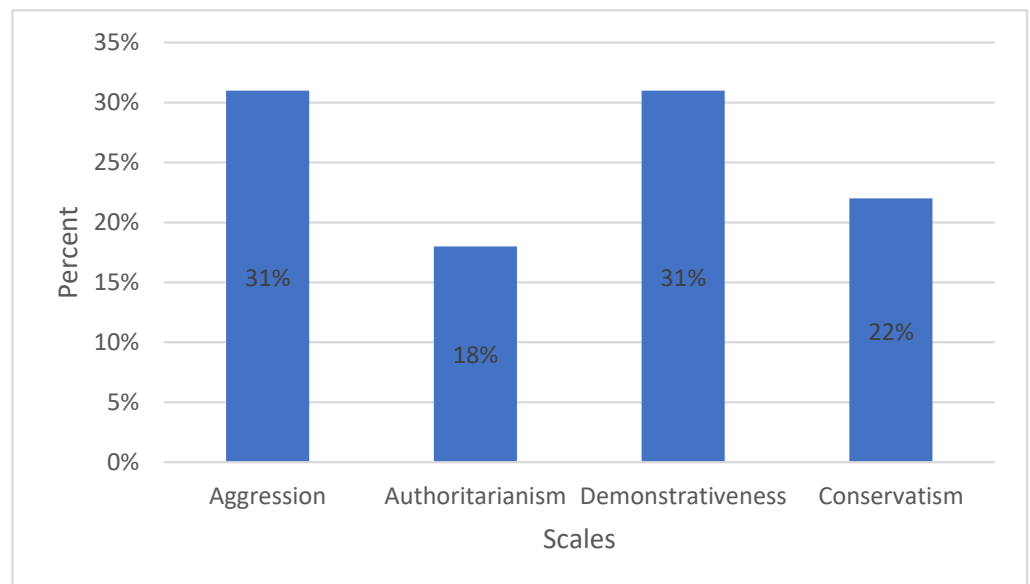
Figure 2. The results of professional deformation.

Results of the Kolmogorov-Smirnov K-S test in the Professional Deformation Survey: aggression z = 0.037, *p* = 0.03, authoritarianism z = 1.48, *p* = 0.025, demonstrativeness z = 0.96, *p* = 0.310, conservatism z = 1.84, *p* = 0.049.

3.2.3. Correlation Analysis of Professional Burnout—Professional Deformation

Analyzing the obtained data, a positive correlation was observed in the following scales: aggression and emotional exhaustion r = 0.320, *p* < 0.000, aggression and depersonalization r = 0.417, *p* < 0.000, demonstrativeness and reduction of personal achievements

r = 0.293, *p* < 0.000, conservatism and emotional exhaustion r = 0.246, *p* < 0.001, and conservatism and depersonalization r = 297, *p* < 0.009. A negative correlation has been observed between demonstrativeness and emotional exhaustion r = −0.141, *p* < 0.050 (Table 2).

Table 2. The professional burnout—deformation correlation.

Scales	Emotional Exhaustion	Depersonalization	Reduced Personal Accomplishment
Aggression	0.320 **	0.417 **	−0.138
Authoritarianism	0.088	0.096	−0.030
Demonstrativeness	−0.141 *	−0.093	0.293 **
Conservatism	0.246 **	0.297 **	−0.077

** Correlation is statistically significant at *p* < 0.01. * Correlation is statistically significant at *p* < 0.05.

Since the calculation of the Kolmogorov-Smirnov Z test results of the entire sample did not correspond to the normal distribution, a decision to divide it into groups, according to the position held, was accepted.

To determine whether there were statistically significant differences between the results of doctors and nurses, first, the Kolmogorov-Smirnov Z test was performed. In the physicians' group, results of the MBI showed that for emotional exhaustion z = 0.716, *p* = 0.684, for depersonalization z = 0.965, *p* = 0.309, and for reduction of personal achievement z = 0.738, *p* = 0.648. In the professional deformation scales; for aggression z = 0.80, *p* = 0.542, for authoritarianism z = 1.03, *p* = 0.231, for demonstrativeness z = 0.857, *p* = 0.455, and for conservatism z = 0.819, *p* = 0.514. The results of the MBI obtained in the sample of nurses showed that: emotional exhaustion z = 0.824, *p* = 0.505, depersonalization z = 0.829, *p* = 0.498, and reduction of personal achievements z = 0.831, *p* = 0.495. The results for the professional deformation scales showed: aggression z = 1.20, *p* = 0.110, authoritarianism z = 1.18, *p* = 0.122, demonstrativeness z = 0.902, *p* = 0.390, conservatism z = 1.09, *p* = 0.182.

Further correlation of the results was examined after dividing the sample into groups according to the position held. Pearson's correlation coefficient was applied to examine the sample divided into groups. The sample of doctors demonstrated a positive correlation on the scale of aggression and depersonalization (r = 0.211, *p* < 0.000), on the scale of demonstrativeness and reduction of personal achievements (r = 0.272, *p* < 0.020), and on the scale of conservatism and depersonalization (r = 0.265, *p* < 0.024). Furthermore, the sample of nurses showed a positive correlation in the following scales: aggression and emotional exhaustion (r = 0.408, *p* < 0.000), aggression and reduction of personal achievements (r = 0.500, *p* < 0.000), demonstrativeness and reduction of personal achievements (r = 0.302, *p* < 0.001), conservatism and emotional exhaustion (r = 0.278, *p* < 0.002), and conservatism and depersonalization (r = 0.328, *p* < 0.000).

A comparison of these two groups of respondents concluded that aggression and emotional exhaustion prevailed in the sample of nurses. For both samples, the factors of depersonalization and aggression, demonstrativeness, and reduction of personal achievements matched. A higher level of conservatism was observed in the sample of nurses.

Since the data obtained in both groups corresponded to normal data distribution, the t-criterion was calculated using the method of parametric statistics. The results of the Mann-Whitney U-test showed that there are no statistically significant differences between the samples (*p* > 0.05).

4. Discussion

The results obtained in this study show that HCWs demonstrate a high level of emotional exhaustion, an average level of depersonalization, and low indicators in the reduction of personal achievements. The data obtained from the Professional Deformation Survey showed that 29% of respondents manifest aggression, 18% authoritarianism, 31% demonstrativeness, and 22% conservatism. Emotional burnout, unfortunately, is an integral part of HCWs' daily life, eventually leading to professional deformation of per-

sonality. Such a work environment causes cumulative stress in the workplace, which, in turn, was recognized as a significant healthcare problem long before the COVID-19 pandemic. The analysis of the scientific literature clearly showed that the COVID-19 pandemic imposed an additional burden on the physical and mental well-being of HCWs worldwide (Wallace et al. 2009).

A rapid review of the existing literature, examining the consequences of the COVID-19 pandemic outbreak on healthcare and mental health, identified 59 articles describing the emotional responses of healthcare workers during an outbreak of a viral infectious disease (Kisely et al. 2020). In the Ukrainian study on the professional adaptation of doctors and the manifestations of emotional burnout syndrome among practicing doctors, significant developments of emotional burnout symptoms and significant manifestations of signs of professional deformation were confirmed (Krasnov et al. 2021). This study also confirms a high level of emotional burnout among medical personnel and signs of professional deformity.

This study provides topical information on the high level of stress of HCWs in the work environment, eventually leading to professional deformation. Therefore, managers of medical institutions should seriously think about imposing a set of preventive measures to improve the physical and mental health of their employees. The content of the training programs should be revised and supplemented with training on adaptation options for HCWs. The latter should be educated on how to recognize and deal with emotional burnout. Leadership and communication skills, as well as the self-regulation of psycho-emotional conditions, should be acquired.

The given research has several strengths. Emotional burnout in healthcare workers was studied with the MBI, a validated instrument. Accordingly, it can also be applied to the study of the psychological impact of the COVID-19 pandemic on the assessment of the mental health of healthcare workers and the relationship with professional deformation. The MBI survey is used in several countries. 195 respondents from 267 medical personnel, or 73% of healthcare workers from the given hospital, took part in the study, therefore this is a representative sample.

However, there are several study limitations. In the demographic data of the study, no information was collected about the structural unit in which the HWC works. This did not allow a correlation between emotional burnout and professional deformation to be examined while considering the specifics of the structural unit. The reliability of the internal consistency of the occupational deformation survey is considered low. This suggests that this survey should be redesigned, and the structure of the articles revised, as well as a recalculation of Cronbach's alpha.

In further research on emotional burnout syndrome and professional deformation, it would be very important to study how these factors are manifested in the employees of specific departments. It is important to look at the correlation between the respondents' age and seniority regarding emotional burnout and professional deformation. This would allow for a deeper understanding of whether one of the causes of the professional deformations of medical personnel is the length of service a professional spends in one workplace. Overall, this study makes a valuable contribution to the study of mental health in the workforce. It emphasizes the need for additional research and the development of tailored intervention strategies to improve the psychological well-being of future physicians.

5. Conclusions

The data obtained about the burnout and professional deformation of HCWs proves that the healthcare system and health organizations have reason to be concerned about the mental well-being of HCWs and the quality of healthcare service provision. Given the high rate of emotional burnout, it is urgent to elaborate a set of evidence-based effective preventive measures with the purpose to promote the well-being of HCWs and to reduce burnout and professional deformation. Otherwise, it may lead to a mass departure of HCWs from the healthcare industry, which, in turn, will worsen the already critical

situation in healthcare. Summarizing studies conducted by various scientists and the results of this research, the important aspect is to consider the content of the education system of HCWs. A course oriented towards an individual's professional self-development, including issues of adaptation, emotional burnout, and motivation, should be introduced. It is equally important to train professional aspects, communication skills, and the self-regulation of psycho-emotional conditions. A wider study of the above-mentioned issues would allow integration of the acquired knowledge and skills, not only for better understanding oneself and one's character traits but also for promoting positive adaptation to the professional field.

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Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: 1. The datasets generated and analyzed during the current study are available from the corresponding author upon reasonable request. 2. All data generated or analyzed during this study are included in the published article. 3. The data that has been used is confidential.

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Conflicts of Interest: The authors declare that they have no competing interest in this section.

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