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Investigating the relationship between parenting style, sense of coherence and health behaviour

# Investigation of the health status, health behaviour and well-being at work of patient care workers in two hospitals in Zala county

Doctoral (Ph.D.) thesis

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## Introduction

Despite a steady improvement since the mid-1990s, the health status of the Hungárián population remains globally unfavourable compared to countries with similar levels of social and economic development (Orosz and Kollányi, 2016).Life expectancy in 2019 is five years lower than the EU average, and the country has a higher rate of premature deaths from cancer and diseases of the circulatory system. In addition to premature mortality, Hungary also compares unfavourably internationally in terms of years of healthy life lost, with a 36% higher loss in 2019 compared to the EU (IHME, 2019) and higher than in the Visegrad countries and Austria (Vitrai and Bakacs, 2021). The main drivers of health losses are risk behaviours in health behaviour. Compared to EU Member States, Hungary has a higher prevalence of risk factors such as smoking, alcohol consumption and unhealthy diet, which contribute to the relatively high incidence of cancer and cardiovascular diseases (Boruzs et al, However, despite the economic growth of recent years, health expenditure as a percentage of GDP in Hungary remains well below the EU average (Vitrai and Bakács, 2021). Health professionals have a key role to play in the health care system in terms of maintaining the health of the population, preventing and treating disease and improving health. In terms of demand, the services provided by the health care system play an important role in our society, yet paradoxically the prestige of health care is low. This is of particular importance because work-related factors, and in particular social esteem, are the primary social dimensions that determine social identity and status, and provide opportunities for learning and development, success and satisfaction, and for building wider social relationships. The psychosocial characteristics associated with work and job quality can have a strong influence on both physical and mental well-being. Patient care activities are long-term, demanding tasks that not only affect physical health, but also have a major impact on mental health, influencing the quality of life of the individual. In addition to preventive and curative work with the general public, healthcare workers are also responsible for their own health, but while they are professionally responsible for the health of others, by virtue of their helping professions, they often neglect their own health. Recognising the importance of this, both in the national and international literature, numerous studies have been conducted to investigate the living and working conditions of health care workers, and as a result, the health status (Mészáros et al., 2013; Németh, 2016), and health behaviour of health care workers in Hungary have also been increasingly investigated (Hompoth et al., 2018; De Hert, 2020 ), quality of life and well-being (Kegye, 2018; Rouleau, 2012).It is of particular importance to study this profession in order to understand the health indicators of professionals responsible for the health of the population, the prevention of diseases, the main characteristics of their health behaviour and the specificities of the work environment (IHME, 2019; Feith, 2008; Pék et al, 2013; Mohos et al., 2021; Guseo and Hertelendi, 2014; Terebessy, 2016; Szényei et al., 2015; Szalai et al., 2021; Stankovic et al., 2019).

## Objective

The aim of our study was to assess the health status and health behaviour of doctors and health care professionals working in two hospitals in Zala County (Dorottya Hospital in Kanizsa and St. Rafael Hospital in Zala County) and to find out the workplace characteristics that influence them. In addition, we aimed to assess the well-being and well-being at work of the health care workers included in the study through various indicators of mental health and the characteristics of the workplace climate. In the context of occupational wellbeing, our main objective was to explore the relationship between mental health, in particular burnout, and the perceived work environment.

### *Research questions formulated along the objectives:*

The questions of our quantitative research were mainly focused on the differentiating factors of health status and health behaviour of health care workers, on the knowledge of professional well-being, and on the exploration of the relationships between the variables under investigation.

Research question 1: What are the characteristics that describe the health status (somatic and mental health) and health behaviour of health workers? What factors differentiate health status and health behaviour?

For research question 1, the following hypotheses were tested:

H. 1. We hypothesise that the health status of the health workers included in our study will vary (both subjectively and objectively) according to sociodemographic (gender, highest educational level) and job characteristics (job title).

H. 2. Signs of poor health are already evident in the early years of working life, with overall physical and mental health characteristics differing from previous studies on similar populations.

H. 3. Health behaviour of health workers is characterised by physical inactivity and a high proportion of smokers. We expect significant differences in both physical activity and smoking between men and women and between different occupational groups.

H. 4. It is hypothesised that the level of depression among the health care workers studied is associated with health risk behaviours (smoking, alcohol consumption).

H. 5. We hypothesise that sociodemographic and work characteristics will show significant differences between the quality of life dimensions, with the mental health dimension in particular showing a worse state, compared to both national and foreign studies.

Research question 2: In what institutional setting do the health workers in our study perform their tasks? What is the relationship between the institutional climate and wellbeing at work and some dimensions of mental health?

For research question 2, the following hypotheses were tested:

H.1. It is assumed that strong differences can be demonstrated along certain work-related characteristics (number of years in job, job title) with respect to the perceived work climate.

H. 2. It is hypothesized that the perceived work climate is related to some dimensions of mental health, such as burnout, subjective well-being, life satisfaction.

## Sample and method

The sampling procedure was mainly convenience sampling, aiming at a high response rate and a similar image of the institutions included in our study in terms of size and services to other county hospitals in the country. These two hospitals were chosen because, among the hospitals in Hungary, the Zala Vármegyei Szent Rafel Hospital and the Kanizsai Dorottya Hospital are among the so-called stable hospitals, where the debt does not exceed 90 days. The two hospitals provide similar services and have similar specifications, as both hospitals in Zala County are hospitals of the County of Zala County, which facilitated their comparison. In terms of population, the population density of Zala County is around the national average. It is a special case, however, that it borders three countries (Austria, Croatia, Slovenia) and that retired people who have moved to the area also use the health services, yet there is no shortage of care. We conducted our cross-sectional, quantitative study using purposive, non-random sampling between December 2019 and March 2020 in two hospitals in Zala County (n=1048), among staff involved in patient care and diagnostics, in the period before the COVID-19 pandemic. The questionnaires were distributed in printed form to 1520 physicians and health care professionals through the nursing and medical directors. Completed questionnaires were collected and returned to us by the head nurses. Participation in the survey was voluntary and anonymity of participants was assured. The response rate was 69%.

## Data collection methods and tools, presentation of the questionnaire.

The data collection tool was a questionnaire consisting of self-designed questions and additional validated questionnaires. The self-administered questionnaire includes the following groups of questions, which are analysed in the dissertation: sociodemographic data (gender, age, education, place of residence, marital status, self-assessment of Financial situation), questions on job, occupation, second job, self-assessment of health, questions on health behaviour (smoking, alcohol consumption, exercise), participation in screening tests, physical symptoms, prevalence of diseases. Validated questionnaires: the SF-36 Quality of Life Questionnaire, relevant sections of the ELEF questionnaire, Maslach Burnout Inventory, Beck Depression Questionnaire, Diener Life Satisfaction, WHO Well-being Questionnaire, Effort-Reward Questionnaire.

## The SF-36 questionnaire

The Hungarian version of the questionnaire developed by Ware in 1992 to assess the subjective health status of the population over fourteen was validated by Czimbalmos and colleagues in 1999. The subjective state of health, which is the subject of the questionnaire, is in fact the level of functioning of the organism as perceived subjectively by the individual, and can be assessed through 36 questions. The SF-36 questionnaire is widely used in both medical and physiotherapy research to measure changes in health status after interventions (Ware, 2008; Mawson, 1999). The questionnaire captures the respondent's perception of his/her own health through eight dimensions . The first three of the eight dimensions predominantly measure physical health, while the last three reliably characterise mental health. The fourth and fifth dimensions play a role in both main variables (physical and mental health). In the present study, we have not included the dimensions of mental health, social function and vitality in our research instrument due to the limitations of the paper, as these data are not or only indirectly related to the subject matter and hypotheses of the scientific work.

ELEF **questionnaire**

Due to the length of the questionnaire, we have included only the most necessary elements of the original ELEF questionnaire.

**Maslach Burnout Inventory**

To measure burnout, we used the Maslach Burnout Inventory (hereafter: MBI) (Maslach et al., 1996; Ádám and Mészáros, 2012).The MBI is a 22-item questionnaire that measures burnout in three dimensions (emotional exhaustion, depersonalization and self-efficacy).

**Beck Depression Questionnaire**

The Beck Depression Inventory (BDI) and its shortened version are validated measures of depression. It is well correlated with the van Riezen and Segal depression severity assessment and therefore the BDI can be used with a high degree of confidence to estimate the severity of depressive symptom complexes (Beck and Beck, 1972; Kopp, 2007; van Riezen and Segal, 1988; Kovács, 2003).

**Diener Satisfaction with Life Scale**

The Satisfaction With Life Scale, hereafter referred to as the SWLS scale. The original questionnaire has three dimensions: satisfaction, pleasant feelings, and lack thereof (Diener,1999). In our research, we used the "subjective psychological well-being" to measure satisfaction with life.

**WHO Well-being Scale**

The WHO Well-being Scale (hereafter: WBI-5) is designed to assess the general well-being of individuals in the two-week period preceding the completion of the survey.The instrument was adapted and validated for the Hungarian population within the framework of the Hungarostudy 2002 survey. The instrument consists of five items (Rózsa et al., 2002; Susánszky et al., 2006).

**Organisational climate dimensions**

To explore the organisational dimension of well-being at work, we examined the components of the institutional climate. The first eight statements of the twelve-item instrument are consistent with the climate dimensions (leadership effectiveness and leadership democratism, social informality; staff unity, relationship harmony; extra-institutional relationships; activity; emotional climate) originally developed by Halász (1980) based on Halpin and Croft (1963) and Tagiuri and Litwin (1968) to examine the climate in school boards. In addition, four additional statements have been added to the instrument to assess globally the cooperation of professionals with different qualifications, job satisfaction and the esteem of staff and society. The items of the questionnaire used to measure organisational climate are detailed in Table 15.

## Results

A total of 1,048 respondents completed the questionnaire, with an average age of 46.4 years (SD = 9.8). The majority of respondents worked in jobs that are known to attract women, so it is not surprising that women were strongly over-represented (85.4%). The city was the place of residence (56.4%), while 25.6% of the sample lived in a village and 18% in a county town. In terms of marital status, the vast majority (59.6%) were married or in a civil partnership and a significant percentage (61.4%) had no children at the time of the survey. The majority of respondents had a secondary or tertiary level qualification (69.7%), with around 14.6% having a college degree, 10.1% a university degree and a further 0.4% (only 4) a PhD. For further analysis of highest educational attainment, those with a PhD degree were included in the group of those with a university degree. 5.2% of the sample had only a vocational school education, and the data suggest that they were typically of the older generation. More than half of the respondents (59.7%) said that they had just enough income to live on, but could not save.

### Main characteristics of the work

The average number of years in the profession is 18.86 years (SD = 11.8 years), 55.4% of respondents are nurses, 20% are assistants and 8.4% are doctors. In addition, laboratory analysts, radiographers, midwives, microbiologists, physiotherapists and health educators were included in the study. In terms of specialties, the picture is very diverse, with all specialties represented, from different specifications of internal medicine and surgery to paediatrics and nursing. In terms of shift patterns, the highest number of staff (n = 705; 67.3%) work two shifts, followed by single-shift staff (n = 174; 16.6%). A total of 119 staff (11.4%) work two shifts continuously or three shifts continuously. Nearly a quarter of respondents (n = 259; 24.7%) have a second job, of which 171 (16.1%) work in the health sector as a proportion of the total sample, while 11.0% have a second job in other fields. Due to the high heterogeneity of job and highest educational qualification, the analysis classified the respondents into three groups: (1) doctors (85; 8.1%); (2) professionals with a degree (181; 17.3%); (3) professionals without a degree (782; 74.6%).

### Subjective indicators of health

Subjective health status was assessed by the SF 36 questionnaire, which assesses respondents' perceptions of their own health, and the aggregated results are presented. The maximum score for each dimension is 100, with the highest score for physical function and the lowest score for general health for the whole sample. The first two questions of the questionnaire, which ask respondents to rate their subjective perception of health and their perception of health compared to one year ago on a five-point scale, were analysed separately. Analysis of the data shows that the majority of respondents consider their current health to be good or very good (n=690; 66%), with only 5% (n=52) considering their current health to be poor or very poor. Nearly three quarters of the health workers surveyed (n=778; 74.2%) had not experienced any change in their health in the year before the survey, with nearly five per cent (n=64; 6.1%) feeling that their health was slightly better now than 1 year earlier.

### Objective indicators of health

Objective indicators of health status included diagnosed chronic illness, as asked about in the ELEF questionnaire, the number of days lost from work due to health problems, and complaints related to health problems, such as pain. Some 53% of the health workers surveyed have a chronic illness or long-standing health complaint, many with more than one. Two chronic conditions were reported by nearly fifty per cent of respondents (n=483;46.1%). The most

common chronic complaint was back and lower back pain, reported by 17.7% of respondents, allergies (e.g. hay fever, eczema, food allergy) by 13.7%, high blood pressure by 9.5%, arthritis by 7.8%, and hypothyroidism by 6.3%. In addition to low back and back pain, neck pain and other cervical spine problems were also reported by more people. Despite having a chronic illness or medical complaint, only 17.9% of respondents had been absent or on sick leave in the year prior to responding, for an average of 2.13 days (SD: 10.25; minimum: 1; maximum: 183 days). The most common days taken were five (4.9%) and 10 (1.6%). In relation to chronic illnesses or complaints, 24.1% of respondents regularly take medication on prescription and 5.1% self-medicate. For health care workers, it is particularly important to be healthy at work, despite the fact that around 59.6% of the health care workers surveyed had worked sick for an average of 12.06 days (SD: 42.326; minimum: 1; maximum: 365 days). In terms of long-standing health complaints, it is worth noting that 58.2% of respondents had experienced physical pain in the four weeks prior to the survey. More than half of the respondents (54.3%) reported that physical pain limited their ability to carry out their daily tasks, including work and housework. 61.8% (n=648) of health workers surveyed had a health-related complaint that they attributed to their work. The most common complaint was back and lower back pain.

In the context of objective indicators, we calculated the body mass index of the respondents based on the available data (height, weight) and classified them into the WHO recommended BMI categories. Our calculations show that about 35.1% of the health workers included in our study fall into the "overweight" category and 20.2% into the "obese" category.

**Mental health of the health workers included in the study**

In exploring mental health, we focused mainly on overall satisfaction with life, burnout and the presence of depression. To measure overall satisfaction with life, we first summed the scale scores assigned to each statement and then created categories. Overall, the majority of the health workers surveyed, around 77.4%, were rather satisfied with their lives, with only 18.9% indicating a scale value for dissatisfaction. Somewhat contradicting the results on life satisfaction, only 8% of respondents reported no depressive symptoms, 61.5% reported mild depressive symptoms, 24.8% moderate and 5.7% severe depressive symptoms. The link between work-related factors and mental health for health workers can be captured in the degree of burnout. Basically, burnout can be defined in three distinct dimensions: depersonalisation, emotional exhaustion and a sense of realising reduced personal efficacy. Our results point out that respondents are most at risk of emotional exhaustion: 46.2% show a medium level of burnout in this area, while 16.4% show a high level of burnout.

**Social support**

In the context of mental health, we felt it was important to understand the extent to which individuals can rely on those around them, and whether those around them show an interest in the individual. Less than 10% of respondents can rely on no one (n=68; 6.5%;), the majority can rely on one or two (n=653; 62.3%), three to five (n=164; 15.6%), and the same proportion can rely on six or more people for personal problems (n=163; 15.6%). Approaching the question from another angle, it can be seen that the majority of respondents (n=980; 93.5%) can always talk to someone about their personal problems.

**Main characteristics of health behaviour of health workers**

The extent to which individuals can exercise control over their health is of key importance for health maintenance and health promotion. In our research, we therefore felt it was important to find out what respondents think they can do to maintain their own health. As health workers, it is not at all surprising that a quarter of respondents felt very confident, while over half of respondents felt very confident, less than twenty per cent felt less confident and felt they could do little and only 2% felt they could do nothing to look after their health. In terms of health behaviours, we looked at the main lifestyle elements: smoking, alcohol consumption, and exercise and dietary habits. The questions in the questionnaire were designed to capture the main characteristics and not to explore in detail the pattern of habits related to individual lifestyle elements. All respondents (41.8%) smoke. 34.4% of the respondents smoke one pack and 3.4% smoke more than one pack a day. For further analysis of smoking habits, the group of never smokers and quit smokers was combined into the "never smokers" (n=479 45.7%), the group of occasional smokers and smokers who smoke 1-2 packs per day into the "smokers who smoke less than 1 pack per day" (n=142 4.0%), the group of smokers who smoke 1 pack per day and more than 1 pack per day into the "smokers who smoke more than 1 pack per day" (n=396; 37.Alcohol consumption is mainly characterised by occasional consumption (73.6%), with 1.1% of the sample consuming alcohol four or more times.

**Characteristics of nutrition**

Most research on eating habits focuses on the composition and quantity of food eaten, but this study only aimed to assess whether there is enough time in an average working day to eat properly. In this respect, we find that the proportion of health workers who are mostly or not at all able to eat adequately on working days is particularly high (53.2%). Research on health behaviour in the context of nutrition also places a strong emphasis on understanding physical activity. It was therefore considered important to explore the sporting habits of health care workers through the characteristics of their physical activity. 53.4% of the respondents (n=560) spend 1-3 hours per week occasionally doing physical activity, while 40.1% (n=420) do not do any physical activity.

**Screening tests**

The willingness to participate in screening tests provides important information on the individual's activity related to health promotion and disease prevention. In addition to the mandatory lung screening and occupational health laboratory tests, 71.17% (n=895) of the women responding had a gynaecological screening within a year and 6.02% had a cervical cancer screening more than three years ago. 30.5% of women aged 45 and over (n=574) had had a mammography screening within the last year and 49.5% had never had a screening. Although the recommendations suggest screening mammography every two years for women over 45, a relatively high proportion of women under 45 years of age also attend screening among respondents.

**Organisational characteristics**

To explore the organisational dimension of well-being at work, we examined the main components of the institutional climate. The twelve-item instrument measures respondents' perceptions of their work environment on a 5-point scale. The results show that respondents' perceptions of the climate dimensions are that efficiency, professional work according to uniform guidelines and the democratic functioning of management are considered to be strengths. However, a problem is that in an area where teamwork is part of everyday life, respondents perceive that intimate, equal partnerships are less likely to be achieved. Also noteworthy is the very low social esteem, which can be a key determinant of the professional identity and well-being of health workers

**Answering research questions, results of hypothesis testing**

The aim of our study was to investigate the professional well-being of employees directly involved in patient care in two public hospitals in Zala, Zala County, through the characteristics of mental health and workplace climate. In addition, we aimed to assess the health status and health behaviour of the doctors and health care professionals involved in the study, and to learn about the workplace characteristics that influence them. In the context of well-being at work, a key objective was to explore the relationship between mental health, in particular burnout, and the perceived work environment.

The analysis of the data collected in our quantitative survey of health care workers, in relation to the research questions and hypotheses formulated in advance, yielded the following results:

Research question 1: What are the characteristics that describe the health status (somatic and mental health) and health behaviour of health workers? What factors differentiate health status and health behaviour?

***For research question 1, the following hypotheses were tested:***

H. 1. We hypothesise that the health status of the health workers included in our study will differ (both subjectively and objectively) according to sociodemographic (gender, highest educational level) and job characteristics (job function).

Our results show that in the overall health dimension of subjective health, gender and job title do not differ, while highest education and time at work do. The health indicators of those with vocational school education and those with 26-30 years in the workforce are markedly less favourable. For physical function, significant differences between gender and occupational groups were also confirmed. Highest educational attainment and time in work were also found to be differentiating factors. The most favourable indicators were those with a BSc. degree and those with 6-10 years in the field. A similar trend is observed for physical role. While gender and occupation do not, the highest level of education and years in work are significantly differentiating factors. In this context, those with a vocational school degree and those with 3640 years in the labour market are at a significant disadvantage. No differences between gender and occupational groups could be demonstrated for physical pain. The median values for gender are the same, but the values for doctors are the most favourable. The highest level of education and the length of time in the profession were also found to be significant differentiating factors. The most unfavourable indicators are for those with a vocational school education and those with 26-30 years in the profession. No significant differences were found between those employed as nurses and those not employed as nurses. When examining the differentiating factors of emotional role, the highest level of education was found to be a significant influencing factor. Those with vocational schooling had the best indicators, while doctors had the worst indicators across occupational groups. No differences were found between job title and length of time in the job.

The objective health survey found that more than half of health workers have a chronic illness. Women and doctors have a higher proportion of 1-2 chronic diseases. There is a marked difference in the number of illnesses and age groups, with those who have been in the profession for 26-30 years found to be the most at risk. The indicators are more favourable for men and for professionals with a degree. The most common chronic illness was back and low back pain, which affected workers in certain occupations equally, and in both nursing and non-nursing occupations. In terms of obesity, women and those with a secondary school education were more affected, while the body mass index of graduates was found to be the most favourable.

H. 2. Signs of negative health status are already evident in the early years of working life, with overall physical and mental health characteristics differing from the results of previous studies on similar populations.

Our study did not show that negative changes in health status also occur in the early years of working life.

H. 3. Health behaviour of health workers is characterised by physical inactivity and a high proportion of smokers. We expect significant differences in both physical activity and smoking between men and women and between different occupational groups.

The proportion of smokers was very high (41.8%) compared to the adult population. No significant gender differences were found between nurses and non-nurses. Among professional graduates, significantly fewer people smoke. In terms of alcohol consumption, women are more likely to drink alcohol 2-4 times a week. Significantly more of the graduate professional group drink alcohol on a monthly basis. In contrast to nurses, significantly more people in the non- nursing group drink alcohol 2-4 times a week.

H. 4. It is hypothesised that the level of depression of the health workers studied is associated with health risk behaviours (smoking, alcohol consumption).

Significantly more health workers with mild depression smoke compared to other groups. Among those with mild depression, significantly more people drink alcohol monthly or less frequently. Overall, when looking at the relationship between health behaviours and depression, it can be concluded that the level of depression among the health workers surveyed is associated with health risk behaviours.

H. 5. We hypothesise that sociodemographic and work characteristics will show significant differences between the quality of life dimensions, with the mental health dimension in particular showing a worse state, compared to both national and foreign studies.

When looking at mental health, no significant difference was found between male and female respondents' satisfaction with life. In terms of satisfaction with life, the highest proportion of those who were extremely satisfied was among doctors. The group most at risk of depression were non-degreed professionals.

Research question 2: In what kind of institutional environment do the health workers in our study perform their tasks? What is the relationship between the institutional climate and professional well-being and certain dimensions of mental health?

***For research question 2, the following hypotheses were tested:***

H.1. We hypothesised that strong differences could be demonstrated along certain work-related characteristics (number of years in job, job title) with respect to perceived work climate.

Our results show that there were no strong differences in the number of years of work experience or job title for certain work-related characteristics in terms of perceived work climate.

H. 2. We hypothesized that the perceived work climate would be related to some dimensions of mental health, such as burnout, subjective well-being, and life satisfaction.

Reflecting the first eleven statements of the work climate variable, the MBI categories of depersonalization and emotional exhaustion did not show significant differences, while the MBI categories of personal efficacy, Diener SWLS life satisfaction and Beck BDI depression showed significant differences. In summary, high self-efficacy, life satisfaction and low depression were associated with higher climate indicators for respondents.

There was no significant difference in the twelve dimensions of the work climate statement in terms of the MBI emotional exhaustion and personal effectiveness scales. When examining MBI depersonalization, life satisfaction and depression, significant differences were observed between the scale categories. A similar trend is observed in other national and foreign studies. Our results suggest that more favourable climate indicators are associated with higher life satisfaction, lower levels of burnout (on the dimension of depersonalisation) and lower levels of depression.

**New Scientific Results**

Our analyses presented in this thesis have produced several new results, which we would like to summarise below.

Although in recent years there has been a strong focus on mapping health indicators of health care workers, with a particular emphasis on mental health indicators, most of the studies have focused on the health status, health behaviour and mental health of a specific group of health care workers. In the domestic context, there has been little comprehensive research on this topic, covering a broader range of health care workers and with a high number of items.

Dissatisfaction among doctors may be linked to a perception of low social esteem for their work, despite the fact that their activities are essential for the health of the population. More emphasis needs to be placed on the recognition of the work of health professionals.

We have shown that doctors' sense of personal efficacy is the most favourable, which may be related to the fact that they can continuously develop their professional and personal competences in carrying out diagnostic procedures and planning and monitoring therapy.

We have pointed out that the tendency to depression is higher than average among professionals with low levels of education, in our case, no degree.

In terms of highest educational attainment, the highest proportion of those with a secondary school education rated their health as poor or very poor, highlighting groups of professionals who need more attention in workplace health promotion interventions.

There has been no study of organisational culture among health care workers in Hungary. The importance of understanding organisational culture is that we know that working in the right work environment and atmosphere increases work efficiency and effectiveness. Although data analysis has not demonstrated strong relationships between workplace climate and specific dimensions of mental health, it is clear that a positive workplace climate has a protective effect on mental health.

We have defined the professional well-being of health care workers: **the professional well- being of health care workers is defined as *"the sum of their assessment of their professional situation, their satisfaction with their health care work and their situation as a health care worker, and their positive and negative feelings about it".***

**Proposals to improve the Health and well-being of Health workers**

The protection of the health and safety of health workers should be part of the core activities of the health sector, which can contribute to the prevention of work-related illness and injury, improving the quality and safety of care, safeguarding human resources for health and environmental sustainability.

Particular attention should be paid to shift workers, some of the more likely to develop health problems linked to irregular eating, stress and disruption of circadian rhythms and sleep, as well as physical inactivity. In workplace health promotion, it is recommended to support the development of optimal dietary habits and regular physical activity at both individual and organisational levels.

The analysis of the variables related to well-being at work highlighted that, in addition to low levels of social esteem, respondents perceive that peer partnerships are not functioning well in their workplace. To improve this, it is essential that professionals from different disciplines communicate and collaborate on an ongoing basis, sharing knowledge and resources.

Our results also show that more positive job characteristics lead to lower levels of burnout and depression, and higher levels of life satisfaction. This makes it particularly important to promote well-being at work in jobs where workers exposed to ongoing mental stress are at increased risk of burnout and depression. In order to promote well-being at work, we consider it necessary to develop organisational interventions that, based on the specificities of the institution concerned, aim to improve the well-being of the staff in the institution through the development of the institutional climate. The effectiveness of organisational development can be further enhanced through the involvement of a supervisor who can support participants in resolving difficulties and challenges they face in their daily practice, discussing problems that affect them and contributing to the development of health workers in working with patients and their relatives.

Increased psychological supervision of workers by middle managers, by involving them in decision-making processes, if they can plan work processes within their own competence, they will be less exposed to burnout. Psychological or psychiatric consultation in the event of role conflicts. Where possible, assignment to variable workflow.

**Possible directions for further research**

In presenting and interpreting our results, we cannot ignore the fact that our study was conducted in the period before the COVID-19 outbreak, in the context of a cross-sectional study. We therefore consider it necessary to repeat the research with the involvement of several institutions, both to capture the impact of the pandemic in this area and to get the views of stakeholders on the changes and actions taking place in the health sector. Some of the stress factors can be eliminated through good communication and optimal organisation. It is therefore important to examine and explore these situations in more detail. In order to examine the characteristics of the organisational culture and institutional climate, we consider it necessary to adapt questionnaires to the domestic context, which would provide reliable and valid data for the health sector.

In order to prevent burnout, it would be necessary to assess the possible indicating factors and to develop appropriate prevention protocols. Identifying the factors behind the differences between institutions, identifying sources of stress and eliminating the duplication of a rigid system. Longitudinal studies of the health status, health behaviour and well-being of health workers could be a new research direction, with the potential to monitor health and organisational development interventions.

**Limitations of the study**

Our questionnaire survey took place in the period leading up to the COVID-19 pandemic, which placed an enormous burden on health workers, both physically and mentally. The results of our survey only provide a snapshot of the period before the pandemic, but the events of the pandemic certainly had a significant impact on the health and well-being of health workers. The results of our research can therefore only be applied to the period before the pandemic.

A further limitation of our study is the sampling procedure (simple, non-random), which does not allow us to draw general conclusions about the health status, health behaviour and well- being of doctors and health professionals in Hungary.

Although the doctors and health professionals included in our research work in different areas of patient care and have a wide range of qualifications, it was not possible to carry out a comparative analysis by specification due to the small number of subsamples.

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**Publications related to the thesis:**

**Journal Communications:**

Csima, M., Podráczky, J., **Cseh, S.,** Sipos, D., Garai, S., & Finánczy, J. (2024, April 20). Downside of Helping Professions: A Comparative Study of Health Indicators and Health Behaviour among Nurses and Early Childhood Educators. healthcare. https://doi.org/10.3390/healthcare12080863Cseh, p., Finánczy, J., Sipos, D., Stromájer, G., and Csima, M. (2022). Investigation of the well-being of patient care workers at work in two hospitals in Zala County, Orvosi Hetilap, 163(19), 759-766. doi: https://doi.org/10.1556/650.2022.32422

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