Family Medicine & Primary Care Review 2023; 25(2): 165–171, https://doi.org/10.5114/fmpcr.2023.127675

ORIGINAL PAPERS

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ISSN 1734-3402, eISSN 2449-8580

COVID-19 pandemic through the eyes of general nurses in the South Bohemian Region: a qualitative study

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A – Study Design, **B** – Data Collection, **C** – Statistical Analysis, **D** – Data Interpretation, **E** – Manuscript Preparation, **F** – Literature Search, **G** – Funds Collection

Summary **Background.** The COVID-19 pandemic brought about significant changes for healthcare professionals, which led to a new situation and challenges in patient care.
Objectives. The aim of this study was to examine the opinion and experiences of general nurses in the South Bohemian Region of the Czech Republic on the impact of the COVID-19 pandemic.
Material and methods. To meet this goal, qualitative research was chosen in the form of semi-structured interviews with 15 nurses across the healthcare system in the South Bohemian Region in the Czech Republic. The research was carried out from 1.6.2021–30.9.2021. Data analysis was carried out using the embedded theory.
Results. The central category was "Nurse". Related categories were identified as a pandemic, nurse personality, nurse's job description, the impact of the pandemic, mental hygiene, information and media, patient responses, professional demands, the functioning of health and healthcare facilities, the future and pandemics. The pandemic had a positive and negative impact on all these categories. The positive impact was connected mainly with the development of skills and the competence of nurses. The negative effect was primarily associated with stress, rapid changes in practice, doubt about knowledge and skills and fear.
Conclusions. Interviews with nurses showed that for effective management of the increased burden placed on nurses during a pandemic, it is essential in the future to pay attention to the saturation of the basic, lower and higher needs of nurses. The importance of support in work, family and social life, access to quality information and the opportunity to expand knowledge and skills was also evident.
Key words: nurses, pandemics, COVID-19, nurse practitioners, health care facilities, manpower and services.

Hellerová V, Dolák F, Chloubová I, Bártlová S, Tóthová V, Kimmerová J, Kimmer D. COVID-19 pandemic through the eyes of general nurses in the South Bohemian Region: a qualitative study. *Fam Med Prim Care Rev* 2023; 25(2): 165–171, doi: https://doi.org/10.5114/fmpcr.2023.127675.

Background

Coronavirus (COVID-19) is an infectious disease caused by the beta variant of SARS-CoV-2 (Severe Acute Respiratory Syndrome Coronavirus 2). The first signs of the disease were recorded in December 2019 in the Chinese city of Wuhan. In a relatively short period of time, this disease had spread almost all over the world, and starting on 11.3.2020, according to the WHO, it was possible to speak in terms of a pandemic. The rate of spread of SARS-CoV-2 (hereinafter COVID-19) was influenced by the characteristics of the virus, i.e. being highly contagious [1, 2].

As the disease spread to individual countries, the awareness of health professionals and the public about the COVID-19 virus and its transmission began to increase. It was shown that transmission from one person to another could be slowed or even stopped. Therefore, the World Health Organization's (WHO) priorities within the framework of crisis preparedness included not only the preparation of systems for responding to the increasing incidence and prevalence of the disease but also steps to ensure sufficient bed capacity for COVID-19 patients, as well as sufficient equipment, facilities and staffing [3].

In developing these measures, the WHO [4] highlighted the impact of COVID-19 on the lives of individuals, families and communities in societies around the world. Social life, economies and public healthcare networks underwent significant changes in connection with anti-epidemic measures, which, in addition to undergoing rapid changes, were also subjected to extreme stress. This burden was caused not only by the severity of the disease and its prognosis but also by the demands associated with diagnosis and treatment. Rafaw et al. [5] pointed to a poorly informed healthcare system by policymakers and a need for more equipped to provide care during the spread of the infection. In view of the prevention of the impact of stress on health workers, they pointed to balanced work scheduling and collaborative working relationship in defined geographical areas. They also mentioned concerns about collateral damage to the population's health due to abandoned or postponed routine care. Russel et al. [6], in the results of an exploratory qualitative study, mentioned the impact of stress created by dramatic changes at the beginning of the pandemic, negative emotions related to intensified fear of infection, problematic government guidance, lack of personal protective equipment and friction with doctors. The results of a cross-sectional study by Galletta et al. [7] pointed to increased job stress related to higher levels of rumination about the pandemic, job demand, impact on job role, watching co-workers crying at work, etc. They also mentioned that thoughts about the pandemic were also associated

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with caring for patients who died of COVID-19. The WHO [4] was also aware of the impact of the pandemic on healthcare professionals, noting the disproportionate impact on women, who, in many countries, make up 70% of the healthcare workforce. The Czech Republic [8] was no exception in this respect, where women represent 78% of all medical staff. The profession of general nurse is significantly represented, and nurses played a significant role in patient care during the pandemic. At a time marked by a high degree of uncertainty, nurses faced several new challenges related to patient care and keeping themselves, their loved ones and their patients safe [9].

Objectives

The aim of this study was to examine the opinion and experiences of general nurses in the South Bohemian Region of the Czech Republic on the impact of the COVID-19 pandemic. It further aimed to answer these key questions:

1. What impact did the COVID-19 pandemic have on general nurses in GP offices (General Practitioner offices)?
2. What impact did the COVID-19 pandemic have on general nurses in inpatient wards that were not primarily intended to treat COVID-19 patients?
3. What impact did the COVID-19 pandemic have on general nurses in inpatient wards primarily intended to treat COVID-19 patients?
4. Which factors related to the COVID-19 pandemic had a significant impact on general nurses across the health system in the South Bohemian Region in the Czech Republic?

Material and methods

Study design and research tool

The study used a qualitative design using the grounded theory, in which the fields of interest were defined, not the variables. This allowed us to view the data obtained through interviews without bias and preserved the potential to "discover that which was is significant" [10, p. 14]. Interviews were conducted with fifteen general nurses from 1.6.2021–30.9.2021. Specifically, the interviews addressed:

- Five general nurses who worked with adult general practitioners during the COVID-19 pandemic.
- Five general nurses who, during the COVID-19 pandemic, worked in inpatient wards which were not primarily intended for the treatment of patients with COVID-19.
- Five general nurses who, during the COVID-19 pandemic, worked in wards primarily intended for the treatment of COVID-19 positive patients.

The snowball method was used to solicit participants. The criteria for selecting participants were: working as a general nurse and having a related job title, i.e. work in a general practitioner's office for adults, work in an inpatient department which was not primarily intended for COVID-19 positive patients and work in the inpatient department which was primarily intended for COVID-19 positive patients. The number of participants was determined by the theoretical saturation criterion.

The content of the semi-structured interview was based on (1) the objectives set out by the research, (2) information obtained from available literature and (3) the experiences of the project-related multidisciplinary research team.

The interview questions were revised several times by the team, and their comprehensibility was pilot tested prior to the start of the study. The final form of the interview contained two main sets of questions. The first more restrictive set examined the job description of the general nurse relative to their duties before the COVID-19 pandemic. The second broader set examined (1) changes in job description and duties during the pandemic, (2) changes in operations, i.e. contact with patients, doctors, other health professionals and family, (3) changes in communication across the healthcare system, (4) subjectively perceived impacts of the COVID-19 pandemic and, finally, (5) challenges to ensuring quality care during future pandemics.

The final form of the interviews, as well as the research proposal, was approved by the Ethics Committee of the Faculty of Health and Social Sciences of the University of South Bohemia. This research did not cover any ethically contentious issues (2020, June 15). Regulation 2016/679 of the European Parliament and of the Council of the EU was respected during the research. All activities related to the inclusion of participants (general nurses) in the research were carried out in accordance with the 1975 Declaration of Helsinki and its most recent revision in 2013 and were in accordance with national ethical standards and regulations.

Research group

All participants in the survey were female. To maintain anonymity, the nurses were assigned fictitious first names, which were used in the presentation of results. The key to identifying participants was controlled by the research team without the possibility of access by others. The general nurses working in the offices of general practitioners treating adults between 25 and 36 years of age were assigned the first names of Alena, Adéla, Anežka, Anna and Agáta. The average length of interviews with these nurses was 2.5 hours. General nurses working in inpatient wards which were not primarily intended for the treatment of COVID-19 patients were between 26–65 years of age and were assigned the first names of Nina, Natalie, Nora, Nela and Nikola. The average length of interviews with these nurses was 1.5 hours. The last group of general nurses worked in inpatient wards designed primarily for the treatment of COVID-19 patients. The age range of these nurses was 29–45 years, and they were assigned the names Kateřina, Kristýna, Karolína, Karla and Klára. The average length of interviews was 2 hours.

The interviews took place as face-to-face meetings. All participants agreed to participate in the interview after becoming familiarised with the objectives of the research and viewing an outline of the interview. Interviews were recorded and then transcribed verbatim. Regarding the length of the interviews, short breaks were included as needed.

Data analysis

The grounded theory was used for the actual data analysis, during which open, axial and selective coding was adopted in accordance with the procedure recommended by Strauss and Corbin [10]. Although the paradigm model was used in this procedure, there was no reduction inductivity due to its generality [11]. During open encoding, the interviews were analysed line by line, and the similarities and differences were color-coded. Subsequently, initial codes, categories and subcategories were identified. The categories and subcategories thus identified were not considered final since they were only observational. Based on a deeper analysis of the data, the search for connections and the composition of the data in a different way during axial coding, a more detailed determination of the phenomenon occurred using conditions that had a certain relationship to this phenomenon, i.e. a paradigmatic model was used [9]. During this step, the following were identified:

- Data from general nurses working in the office of general practitioners, a total of 81 codes expressing causation, 12 subcategories and 3 categories were noted;
- Data from general nurses who worked in inpatient wards not intended for COVID-19 patients, a total of 33 codes expressing causation, 6 subcategories and 2 categories were noted.
- Data from general nurses who worked in wards primarily dedicated to the treatment of COVID-19 patients,

a total of 113 codes expressing causation, 14 subcategories and 4 categories were noted.

The next step in the data analysis was selective coding, in which central categories and continuous subcategories were identified. Regarding the identified categories and subcategories, we proceeded to merge the information, which gave us the opportunity to subsequently express the theory [9]. The "nurse" category was identified as the central category. Other related categories include pandemic, nurse personality, nurse's job description, impacts of the pandemic, mental hygiene, information and media, patient responses, professional demands, functioning of health and healthcare facilities and future pandemics.

Ethical approval

This study did not contain any ethically controversial issues. In the course of the study, Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regards to the processing of personal data and on the free movement of such data, repealing Directive 95/46/EC (General Data Protection Regulation), was adhered to. The drafting of human subjects (respondents) into the research was done in line with the 1975 Declaration of Helsinki and its most recent revision in 2013. National ethical standards and regulations were also observed.

Respondents were informed beforehand about the aim of the study. The study was carried out anonymously. Furthermore, the respondents were informed about the advantages and disadvantages of participating in the study. Participation in the study was voluntary. Respondents gave consent verbally. The study proposal, just like the entire project under the grant, particularly its research phase, was scrutinised and approved by the Ethics Committee of the University of South Bohemia, Czech Republic (ethical approval was given on 15.6.2020).

Results

Story interpretation

The COVID-19 pandemic was a health service challenge in the Czech Republic and around the world. Since nurses working in different areas of the health system were represented in the research group, it was possible to trace very similar connections in the data. The categories "nurse" and "pandemic" appeared to be very significant categories for all three groups of nurses. Based on causal links found across the groups of nurses and the relationships between categories and subcategories, the central category "nurse" was identified. However, "pandemic" was an important link and factor influencing nursing care and had a direct impact on both general nurses and the care provided. Nursing is a specialty requiring specific knowledge, skills, experience, stress resistance, the ability to function within multidisciplinary teams, as well as a certain degree of flexibility, which are assumed in this profession. The pandemic was a very complex challenge to providing care, communication, function of healthcare facilities and mental health problems and required new methods. It revealed the importance of caring for nurses as bio-psycho-social and spiritual beings. Because only a nurse who has saturated basic, lower and higher needs, feels supported at work and in the family environment, has quality information and the opportunity to expand their knowledge and skills can meet the demands associated with a pandemic (see Fig. 1 Schematic representation of relationships between categories. Each of categories will be describe below).

Characteristics of categories

In the characterisation of the ***"nurse"*** category, we can see a description of what qualities nurses should have. We also met with the fact that they should be able to help with advice,

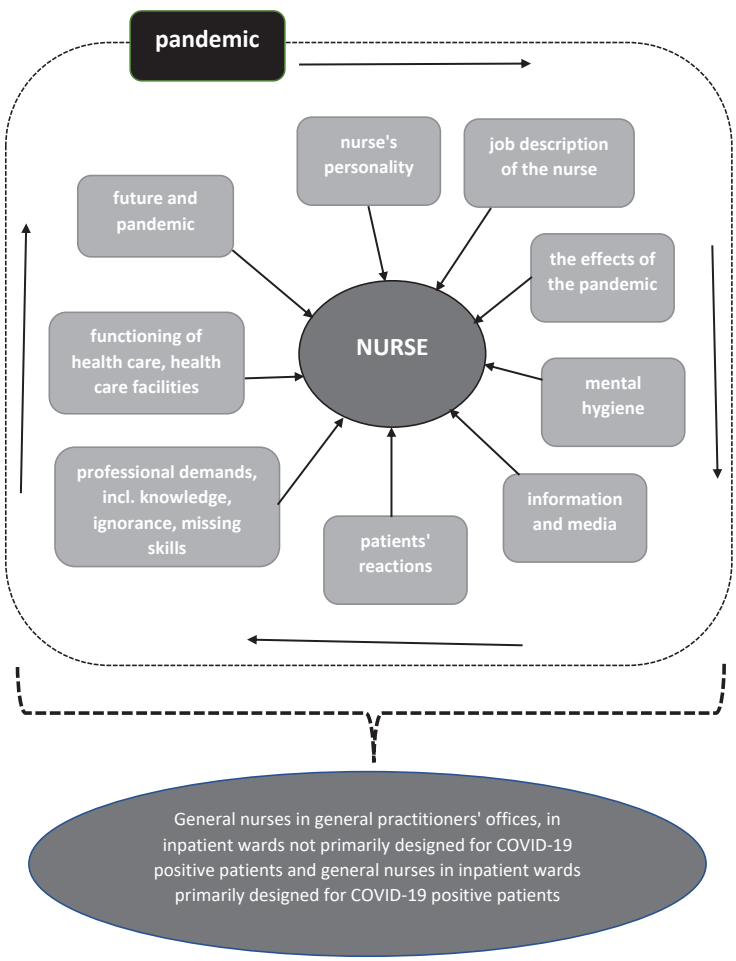

Figure 1. Schematic representation of relationships between identified categories

be flexible and be a source of support for patients and other health (and non-medical) workers. They should be supported by the doctor in the office and, at the same time, a person able to speak openly about the state of health and perspectives that are associated with diseases of any kind. At the same time, however, they should have enough strength to encourage others.

The category ***"job description of the nurse"*** varies according to the place of employment. In the pre-pandemic period, the main activities of general practitioners' nurses included: *"sports examinations, occupational medicine, competition examinations, education and care for the chronically and acutely ill"* (Alena). Additionally, nurses were involved in the *"preparation of prescriptions, request forms, patient accompaniment, reporting of services for the insurance company, cleaning of the surgery and waiting room, etc."* (Adéla). However, the beginning of the pandemic meant some offices were described as "*One big chaos, no one knew anything, we didn't have aids"* (Anežka). *"Prevention was stopped altogether; there was no sufficient testing for occult bleeding, there was no room for dispensation of diabetics and patients taking warfarin. There was a significant shortage of staff in the care of chronic and acute patients"* (Alena). However, there were noticeable differences between the offices depending on the activity of the doctor who managed the surgery: *"Our office functioned without interruption. In addition, telemedicine worked..."* (Adéla); *"Our doctor had all the information in advance from abroad..."* (Anna). The pandemic also brought changes to inpatient wards which were mainly focused on the care of patients with COVID-19. In addition to the standard demands associated with the profession and job description that was characteristic of the type of department, there was a need for a high degree of flexibility and the acquisition of a whole range of new skills in a very short time: *"Our nursing team was made up of nurses who did not normally work together and, in many cases, did not even know each other",* and *"The process of incorporation, for obvious reasons, is short but intense"* (Kateřina). This was often associated with an awareness of a high level of responsibility and some concern: *"... so as not to harm the patients with my ignorance and, at the same time, not to endanger myself and my family"* (Karla). For nurses working in inpatient wards that were not primarily intended for COVID-19 positive patients, anti-pandemic measures often meant a noticeable change in the workload of the ward: *"... we actually saw fewer injuries and less strain on our department"* (Natalie); *"The care was the same, the only difference was that we had to wear masks"* (Nina) and *"... they walked in protective equipment"* (Nikola). Nora, who worked as a station nurse, mentioned more significant changes: *"Within a few days, the requirements, the rules and especially the demands on the nurses were changing. Patients received only limited care, by which I mean that surgery was limited".*

The ***"the effects of the pandemic"*** was a significant category and included factors that affected nurses both professionally and personally. The nurses were aware that their household duties were taken over not only by their partners but also by their children. Among the subjectively perceived impacts were feelings of hopelessness, loss of freedom, danger, hatred, neglect, helplessness, exhaustion, collapse and burnout. Alena mentioned very difficult moments in connection with the lack of staff in the general practitioner's office when nurses stay with children at the "caring for a family member" (Alena), even though they were offered babysitting.

Negative emotions permeated the conversations. These were especially associated with the level of risk that the infectious disease brought, along with a fear of change, but also with the functioning of the system as such. "*We were angry at the patient who concealed the symptoms of COVID and put all of us, including the patients in the waiting room, at risk"* (Alena). Adela also mentioned a certain level of sadness over the fact that *"people don't want to get vaccinated enough... They are selfish".* There was also fear for family, relatives and friends: *"I was very worried about my parents, I couldn't go there. I could never have imagined what it was like when freedom was restricted"* (Alena). The restriction of contact with parents was also confirmed by nurses working in departments that were not primarily intended to treat patients with COVID-19. Here we also encountered a description of a situation where *"some nurses did not want to go to work for fear of infection"* (Nora).

Nurses working in wards designed primarily for COVID-19 positive patients repeatedly mentioned a lack of knowledge, increases in responsibility and an acute awareness of not harming patients. However, there was also a certain pride in the fact that nurses were able to handle this situation. With the increasing demands, as well as the worsening epidemic situation, the nurses faced stress, hopelessness and sadness. In relation to the deteriorating situation, Kristýna said: *"I don't think I had a problem with death, but with the increasing time I spent in the COVID unit, I felt worse".* In this context, Klára also mentioned the issue of dying: *"... we had to call a psychologist and chaplain to the team. We felt that it was our fault, that we could not help the departing patients...".* Alena described the whole situation quite aptly: *"I felt absolute exhaustion, great fatigue, and I did not leave with a clear head. I feel like I've aged five years...".*

The previous statements indicated the issues of increasing ***"professional demands"***, which were mainly related to the need for new knowledge and skills. Nurses in general practitioners' offices mentioned a lack of knowledge associated with new anti-epidemic measures, confusing rules around the incapacity to work and confusing algorithms for treating COVID-19 positive patients. In the case of nurses working in wards not primarily intended for COVID-19 patients, they mentioned the lack of knowledge and skills associated with the use of personal protective equipment (hereinafter referred to as PPE). However, these nurses noted that learning to use PPE was one of the positive aspects coming out of the pandemic (Nina, Natalie, Nela, Nikola). Nurses working in departments primarily intended for the treatment of COVID-19 patients noted the lack of knowledge regarding comprehensive intensive care procedures. Working with instrumentation, especially oxygen therapy, was equally problematic: *"I lacked knowledge of the instruments... the correct use of protective equipment"* (Caroline). Additionally, these nurses mentioned the difficulty linked to the increased care of the sick and dying, especially the frequency with which they encountered death. The need for more knowledge linked to patient positioning, specifically to a prone position, was also mentioned. Handling of devices, working with PPE and the preparation of a sterile environment was also mentioned as areas that caused problems.

This indicates the difficulty of the situation, which brought about increased demands in ***"functioning of healthcare facilities"***. In the offices of general practitioners for adults, this meant, in particular, the strengthening of the administrative component, the allocation of a relatively large amount of time for handling telephone calls, the search for alternative means of communication and the development of telemedicine. Some of the participants (Alena and Anna) mentioned the possibility of using a virtual nurse, although this was not possible in their office. Concerning another feature related to the functioning of general practitioners' offices, Alena noted that: *"... the lack of staff can be overcome, but the technician can't. There must always be a second option. Manual transcription at such a time cannot be practiced for a long time".* Agatha perceived the situation in a similar way. Adéla then noted that even telemedicine has certain limitations, as it responds to: *"diseases that the patient probably has, to difficulties that he probably feels...".* Nevertheless, all the extensions and facilitation of communication were viewed very positively. For nurses working in departments that were not primarily intended for the treatment of COVID-19 patients, the functioning of the department was associated with an uncertain future, which was especially linked to the ability to take leave. The constantly changing demands and the significant

increase in telephone communication were mentioned as problem areas. On the other hand, the bonding of the collective was perceived very positively, although as the pandemic dragged on, this bonding suffered from a measure of fatigue, which, to some extent, was related to having to "cover" services for absent colleagues. For nurses working in departments primarily for the treatment of COVID-positive patients, communication was quite crucial for fully functional healthcare facilities: *"At the beginning, the communication was quite confused... However, the management of our ZZ quickly got their bearings in the difficult situation and began to give us relatively clear instructions"* (Kateřina). Karla sometimes perceived communication within her medical facility to be very demanding and difficult to understand: *"Within the management of our department, I think that everything went as it should. However, when they started intervening from other departments, communication became confusing".*

From the testimonies of the nurses, communication was seen as a significant problem in relation to ***"information and media"***. With regard to the availability of information, nurses in general practitioners' offices consistently stated that all information related to the operation of offices was available on the web and in the offices. However, from their point of view, coordination with regional hygiene offices was often problematic. A *"discrepancy between information from the media and practice"* (Alena) was repeatedly mentioned as an issue that was problematic for patients. Anežka adds: *"I do not comment on the media at all because they have been harming our profession for a completely insane long time".* According to these nurses, this was also due to the sudden onset of the pandemic and the predictions associated with the future course of the pandemic. Alena adds that: *"It would be practical to have a standard process or algorithm. It means what to do and when, what test to implement and when what needs to be had and at the same time to know what attitude the insurance company has to it. To have unambiguous information, even when the situation is changing rapidly".* Repeatedly, the issue of quality information and clarity was mentioned in the context of vaccinations against COVID-19. Here, all respondents agreed on the very negative influence of the media. On the other hand, the media coverage of the nursing profession was, in some cases, perceived positively. For nurses working in departments for the treatment of COVID-19 patients, the pandemic was perceived as strengthening the prestige of the profession.

Communication with the family was also an issue related to ***"patients' reactions"***. The nurses agreed that they felt respect and gratitude from the patients, but this changed as the pandemic progressed and lasted longer. There were both positive and negative reactions and emotions. Nurses in GP offices agreed that patient responses followed the course of the pandemic. In the beginning, patients often did not even observe quarantine, and it was necessary to intervene using the police of the Czech Republic (Alena). Prevention was neglected, frustration was evident, and sometimes this increased aggressiveness. Issues of inadequate requirements in relation to care and the ability to prescribe specific drugs were also mentioned. As the pandemic progressed, a certain laxity was mentioned by the nurses, which was almost proportional to the length of the pandemic. The degree of humility that remained in many patients, as well as responsibility, friendliness and kindness, was viewed positively by the nurses. In addition, nurses working in inpatient wards noticed signs of social isolation, which was accentuated in patients with the prolonged restrictive measures linked to the pandemic. Nurses working in departments for primary treatment of COVID-19 positive patients also highlighted the negative feelings related to humility and the fear of death.

As with patients, nurses had significant mental healthcare problems. Within the framework of **"*mental hygiene*"**, there was a question of balancing and re-evaluating priorities for a future life. *"I began to realise more and more that I didn't want to live like this anymore, that I had to slow down a bit... Actually, I don't even know why I kept chasing something..."* (Adel). All participants expressed a need to have more time for themselves, more time to rest and recuperate and time to relax. Kateřina summarised the demands of the profession during this period and the need for attending to mental well-being: *"After several months of working in the COVID department, I wondered if I could still endure it and if I should not leave".* From other testimonies, it was evident that similar feelings existed across the various spheres of the health system.

The nurses specifically formulated ways to improve operations in the event of another pandemic (***"future and pandemic"*** category). Regardless of where they worked, the issue of strengthening the human factor was unequivocally repeated, not only in health professions but also in auxiliary professions, ensuring sufficient quality aids, improving the quality of knowledge, as well as improving and streamlining the availability of information on vaccinations and administrative steps. Adéla supplemented her recommendation with: *"Mandatory vaccination, perhaps annually*". The importance of greater cooperation with foreign countries and a more active exchange of valid information was mentioned by Anna and Agáta. Nora also noted the need to provide babysitting services and training on the use of PPE. Nurses working in departments designed primarily to treat COVID-19 positive patients repeatedly noted the need to include psychological care for patients, as well as medical and non-medical staff. Nurses proposed many useful suggestions to address issues such as motivational elements in the form of help, coaching and personal development, and an emphasis on regular training on nursing procedures (e.g. oxygen therapy and dealing with final stages of life) in connection with current infectious diseases can also be considered important.

Discussion

The COVID-19 pandemic was a significant burden for health services in the Czech Republic. The impact on nursing staff was evident throughout the health system, as the primary category was identified as "nurse". The COVID-19 pandemic was a decisive factor influencing the nursing profession and in providing care. Higher demands were made on nurses' personalities and in their professional lives. Changes in a nurse's job description, mental hygiene, in patients' reactions and the functioning of healthcare facilities could also be seen. Nurses also mentioned the positive and negative roles of media. In the results which relate to plans for the future, the issue of strengthening the human factor was unequivocally repeated, ensuring sufficient quality aids, improving the quality of knowledge, as well as improving and streamlining the availability of information on vaccinations and administrative steps.

As of 8 June 2022, 3,921,844 cases of COVID-19 had been confirmed in the Czech Republic. Total of 40,295 people died from the disease [12]. According to the WHO [13], even at present, it is not possible to talk about the end of the pandemic as individual countries are still dealing with its consequences. With these facts in mind and predictions associated with mutations of this virus or other infectious diseases, the WHO [13] emphasises the need to develop strategies aimed at preventing pandemics and developing plans to minimise their impact. One of the essential aspects of this challenge is the development and provision of sufficient medical staff. This has long been a problematic issue. The lack of medical staff, and therefore the lack of nurses, is a problem plaguing many countries, including the Czech Republic. These deficiencies can affect the quality of care provided [14]. The lack of staff and its impact on the care provided during the pandemic was often mentioned by our participants. This impacted nurses regardless of where they worked and was often a source of stress. According to the interviewed nurses, the practical effects of the lack of staff included reduced

preventive care and patient education, increased overtime work (i.e. overtime work often without compensatory time off) and having to quickly adjust to reassignment to another department and working within a new system.

As with the results from other studies [15–17], the participants from our study also stated an increased rate of stress, less satisfaction with their work in connection with uncertainty concerning specific nursing care, social distance or isolation, work performance and well-being. Changes in reactions from patients and their families were also mentioned.

Heczková and Bulava [14] found that the work environment was a significant factor in changing jobs. From the testimonies of the participants, the connection between staying employed and their work environment and workload during the pandemic was clear. This is directly reflected in balance, changes in values and reflections on the future. The statements also point to issues of work safety, the availability and use of PPE, working under stress and the need for improving mental hygiene. These factors are also mentioned in the WHO recommendations from the year 2021 [13]. The negatively perceived impacts of the pandemic reported by our participants corresponded to the conclusions reported by Bartzik et al. [15]. Based on the results of a questionnaire survey of 174 registered nurses, they noted that during the pandemic, nurses experienced the effects of stress, less satisfaction with work, reduced work performance and lower quality of life compared to the period before the pandemic to a significant extent. On the other hand, as with the participants in our research, they mentioned they appreciated the respect of a grateful society.

In relation to the management of the pandemic and the organisation of medical facilities, the issue of nurse reassignment to departments for the treatment of COVID-19 positive patients was mentioned many times by the participants. Reassignment put high demands on the flexibility of nurses and required rapid transitions to new duties. For many, the uncertainty associated with the new duties, new interventions and new equipment was a significant issue. These same issues were significant in the conclusions of a cross-sectional study by Clari et al. [18], where feelings of insecurity and dissatisfaction were noted, especially in younger nurses with less experience. The study also noted a reduction in time spent educating patients due to the increased time demands placed on nurses treating COVID-19 patients. In line with our participants, the authors of this study mentioned the importance and need for quality education, as well as the creation of plans for dealing with a lengthy pandemic.

The importance of caring for nurses and the need to understand the psychological changes taking place in connection with a pandemic were mentioned in a qualitative study by Zhang et al. [19]. They stressed that knowledge is essential for workers across all levels of healthcare. They highlight the important role of lead nurses, who must support and facilitate the adaptation of frontline nurses in pandemic situations. Our participants who worked in departments designed for the treatment of COVID-19 patients indicated that psychological and pastoral care is also very important, especially due to frequent contact with death.

Restrictions on personal freedom, fear of contagion, lack of time for oneself, the need to delegate one's duties to family members, fear for one's family and one's patients, as well as professional insecurity and negative feelings towards some people, colleagues and patients, were often mentioned as significant issues. This list of factors largely corresponds to the conclusions by Galletta et al. [7], who studied 894 registered nurses in Italy. The authors identified reflections on the pandemic, the impact of the pandemic on job roles, fear of contagion and the impact of exhaustion on their colleagues at work as significant factors that fuel increased work stress. Based on the findings, the authors emphasised the necessity of creating measures to improve mental hygiene in nurses, as well as measures related to post-traumatic stress. The importance of working with stress, and especially with fear, was also emphasised by Khattak et al. [20], who noted that the fear and stress caused by the pandemic could be a factor influencing nurse turnover in the future. They also mention that this can be eliminated by appropriate guidance and management.

Limitations of the study

The present study was based on interviews conducted with nurses across the healthcare system in the South Bohemian Region of the Czech Republic, which may be a limitation since the results cannot be generalised throughout the Czech Republic. Another limitation may have been the timing of the interviews, since the lengthy duration of the pandemic could have influenced the opinions and statements of those interviewed.

Conclusions

The COVID-19 pandemic has highlighted the shortcomings of health systems in countries around the world. The pandemic also presented many challenges to the Czech healthcare system. These challenges included providing appropriate nursing care and ensuring sufficient nursing staff to meet the demands imposed by the pandemic. However, ensuring sufficient nursing staff requires the creation of a supportive work environment, which turned out to be problematic during the pandemic. In addition to staff issues, the pandemic revealed issues linked to sufficient personal protective equipment, personal and professional continuing education and, in particular, ways to deal with mental health issues and increased stress. Now the challenge is to develop plans to ensure clear and transparent dissemination of information related to pandemic diseases, more competences for nurses regarding the skills necessary for proper care of patients under pandemic conditions and the development of ways to support nurses with regard to mental health and stress.

Source of funding: This paper relates to research project number NU21-09-00300, which is supported by the Ministry of Health of the Czech Republic.
Conflicts of interest: The authors declare no conflicts of interest.

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Tables: 0
Figures: 1
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Received: 20.11.2022
Reviewed: 31.01.2023
Accepted: 11.03.2023

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