

Doctors' Eyes: Perception of Healthcare Services During the COVID-19 Pandemic: Experience in Poznań, Poland

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Abstract

Objectives

The outbreak of the COVID-19 pandemic impacted many aspects of life among various professional groups. Healthcare workers were the first line of help and the most vulnerable to being infected with the SARS-CoV2 virus. The efforts to counter the impact of the pandemic were not helped by shortages of staff and personal protective equipment, which affected the doctors' comfort as well as the patients' access to quality healthcare services. This study investigates the perception of healthcare services during the COVID-19 pandemic from the perspective of medical doctors living in Poznań, Poland.

Material and methods

The questionnaire was distributed in paper form among doctors and dentists. Responses were received from 72 respondents, including 63 women and 9 men. The survey was conducted during Poland's third wave of the COVID-19 pandemic.

Results

Statistically significant correlations were found between access and quality of healthcare services; appointment time and online mode of admission; access to PPE and quality of healthcare services; work comfort and access to PPE; and work comfort and quality of healthcare services.

Conclusions

The work of doctors and dentists during the COVID-19 pandemic has changed their perceptions of the accessibility and quality of healthcare services. The opinions of doctors and other healthcare providers, as the professional group closest to the hardships of the pandemic, should be highlighted and widely considered.

Keywords: assessment, healthcare quality, accessibility of health services, COVID-19, pandemic, coronavirus

Introduction

The discovery of the novel SARS-CoV-2 coronavirus was announced at the end of 2019. The rapid spread of the virus was connected to it being transmitted when infected people talk or cough, as the droplet tract transmits the virus. Infection occurs when the respiratory tract secretions of infected people reach the mucous membranes of people who are still healthy (Sanyaolu et al., 2021). The number of infected people increased rapidly every day in almost every country, leading the World Health Organization to declare a global pandemic called the COVID-19 pandemic in March 2020 (Cucinotta & Vanelli, 2020). Older people with co-morbidities such as prevalent cerebrovascular disease, chronic obstructive pulmonary disease, prevalent cardiovascular disease, diabetes, and hypertension are most at risk. However, severe symptoms of the disease can be seen in people of any age, including children (Booth et al., 2021; Del Sole, 2020). The most common symptoms of the disease are fever, cough, and shortness of breath; other symptoms may include diarrhea, fatigue, and myalgia. Additionally, patients whose initial symptoms include dyspnea, hemoptysis, anorexia, diarrhea, fatigue, and especially abdominal pain should be closely monitored to prevent their condition from deteriorating (da Rosa Mesquita et al., 2021; He et al., 2021). Furthermore, elevated procalcitonin and D-dimer levels, as well as thrombocytopenia, predicted a severe outcome of infection (Violi et al., 2020).

According to the WHO, education, isolation, prevention, transmission control, and treatment of infected patients are mandatory in order to control infectious diseases such as COVID-19. The spread of infection can be minimized through the use of protective masks, social distancing, disinfectants, personal hygiene, and limited contact with infected people (Lotfi et al., 2020).

Despite the implementation of safety measures, the number of SARS-CoV2 patients was increasing (Thu et al., 2020). Doctors were essential in combating the COVID-19 pandemic and its outcomes. The huge number of patients caused doctors' working hours to be extended. Their duties were often at the limit of their abilities and they were extremely vulnerable to the risk of illness (Johnson & Butcher, 2021). Since the beginning

of the pandemic, many healthcare workers have lost their lives due to helping patients with COVID-19. Vaccination campaigns have helped protect frontline workers and reduce COVID-19-related mortality among this group. Although vaccines play a key role in preventing severe symptoms and controlling the spread of the disease caused by SARS-CoV2 infection, both vaccinated and unvaccinated people should also use personal protective equipment (PPE) (Modenese et al., 2022; WHO, 2022).

In Poland, on March 4, the first laboratory-confirmed COVID-19 case was reported. The outbreak of the epidemic was declared on March 20 (Pinkas et al., 2020). Hospital wards were converted to units for patients infected with the SARS-CoV-2 virus. Some medical facilities reduced healthcare services or even stopped admitting patients entirely. The crisis caused by COVID-19 put enormous pressure on doctors. They had to cope with many new demands and were often exhausted. During the pandemic, existing medical staff shortages were exacerbated by the infection or self-isolation of doctors (Korneta & Chmiel, 2022; Rosińska et al., 2022; Dymecka et al., 2021). From the perspective of Polish patients, access to medical services deteriorated during the COVID-19 pandemic and waiting times for appointments increased. Access to healthcare services was limited by the temporary closure of healthcare facilities for non-COVID-19 patients. Also, a lack of higher education or having at least one chronic disease was significantly associated with experiencing barriers to accessing healthcare services during the COVID-19 pandemic (Mularczyk-Tomczewska et al., 2022). The internet proved to be a helpful tool during the pandemic, used by academic institutions for e-learning and by medical facilities for telemedicine (Roszak et al., 2021). Online appointments were useful for increasing access to medical services. Although it has limitations, telemedicine is a safe and useful tool for communicating with patients; in some cases, a teleconsultation with a doctor may not have been sufficient by itself (Binder-Olibrowska et al., 2022).

The aim of the study was to outline the perception of healthcare services during the COVID-19 pandemic from the perspective of medical doctors living in Poznań, Poland.

Material and Methods

Participants

The study covered 72 medical doctors and dentists from the Poznań University of Medical Sciences. The respondents included both women (n=63) and men (n=9) who practice medicine in Poznań. Most respondents were under the age of 60 for women (n=60) and under the age of 65 for men (n=8). The purpose of the questionnaire was explained to the respondents. All of them were informed that participation in the study was voluntary and anonymous.

Study Design

The questionnaire was conducted between July 8 and July 20, 2021, corresponding to Poland's third wave of the pandemic. The questions were prepared in Polish, which is the native language of the respondents. Questionnaires were distributed in paper form to the clinical departments of the Poznań University of Medical Sciences. The questionnaire contained 32 questions, 12 of which related to the sociodemographic characteristics of the respondents, 10 to the accessibility and quality of healthcare services during the COVID-19 pandemic in Poland, and a further 10 to the organization of work during the pandemic. The questions allowed either a single answer or multiple answers or were based on the Visual Analogue Scale (VAS), ranging from 0 to 10, where 0 meant "very bad" and 10 meant "very good." The questions considered, for example, the accessibility and quality of healthcare services, the mode of working, the comfort of the work, the accessibility of PPE, and the way of seeing patients. The questionnaire was accepted by the Bioethics Committee at Poznań University of Medical Sciences (Institutional Review Board Number 484/21) in conformity with the Helsinki Declaration guidelines.

Statistical Analysis

The data analysis was based on calculations made with the software programs Statistica 13 and PQStat. Statistically significant results were defined as those where $p < 0.05$. Based on qualitative data, the statistical analysis used the Wilcoxon test, the Kruskal–Wallis test, the Mann–Whitney test, a two-sided test and Spearman's r_s rank correlation coefficient. The Wilcoxon test was used to compare the respondents' assessment of access to healthcare services before and during the pandemic. The Kruskal–Wallis test was used to compare the evaluation of access to PPE and of doctors' comfort during the pandemic between the group providing state-funded healthcare services and the group providing private healthcare services. The Mann–Whitney test was used to compare the ratings of access to healthcare services between doctors who did and did not provide online appointments and to compare the ratings of work comfort between doctors who said that appointment times were shorter as a result of the pandemic and those who did not claim that. The correlation between stating that visits were shorter and providing online appointments was based on Fisher's two-sided test. Spearman's rank correlation coefficient was used to test the correlation between the quality of healthcare services, access to PPE, and comfort at work. This test was also used to compare whether the rating of accessibility to PPE affected the change in the rating of healthcare services quality, whether the change in the rating of accessibility affected the change in the rating of the quality of healthcare services, whether the rating of comfort depended on the rating of accessibility to PPE, and whether the rating of comfort influenced the change in the rating of the quality of healthcare services.

Results

Complete questionnaires were obtained from 72 people (63 women and 9 men). Of all the respondents, only four did not provide services during the pandemic, with the remaining 68 doctors (95.8%) stating that they saw patients. Twenty-nine doctors saw patients as part of state-reimbursed services, 17 provided only private healthcare services, and 22 allowed both modes. Only 16 of the respondents had online appointments. Fifty-six respondents considered that the time for a patient to visit the doctor's office during the pandemic was not shortened (Table 1).

Table 1. Characteristics of respondents

Independent variables	Categories	N	%
Sex	Female	63	87.5
	Male	9	12.5
Healthcare services provided	State-reimbursed	29	42.6
	Private	17	25.0
	Both	22	32.4
Online appointments	Yes	16	23.5
	No	52	76.5
Appointment time perception	Reduced	12	17.6
	Not reduced	56	82.4

Access to Healthcare Services

Based on the Wilcoxon test, statistically significant differences ($p < 0.001$) were observed in the doctors' assessment of access to healthcare services before and during the pandemic. The respondents assessed that access to healthcare services had decreased due to the pandemic (Figure 1). Based on Spearman's r_s rank correlation coefficient, it was found that the more the rating of accessibility changed, the more the rating of the quality of healthcare service changed ($p < 0.001$) (Figure 2). Based on the Mann-Whitney test, no differences were found in the assessment of accessibility to ($p = 0.597$) or quality of ($p = 0.189$) healthcare services during the pandemic for those who did and those who did not provide online appointments. There was a statistically significant correlation between observing that appointment times were shorter and having online appointments ($p = 0.008$).

Figure 1. Comparison of doctors' assessment of access to healthcare services

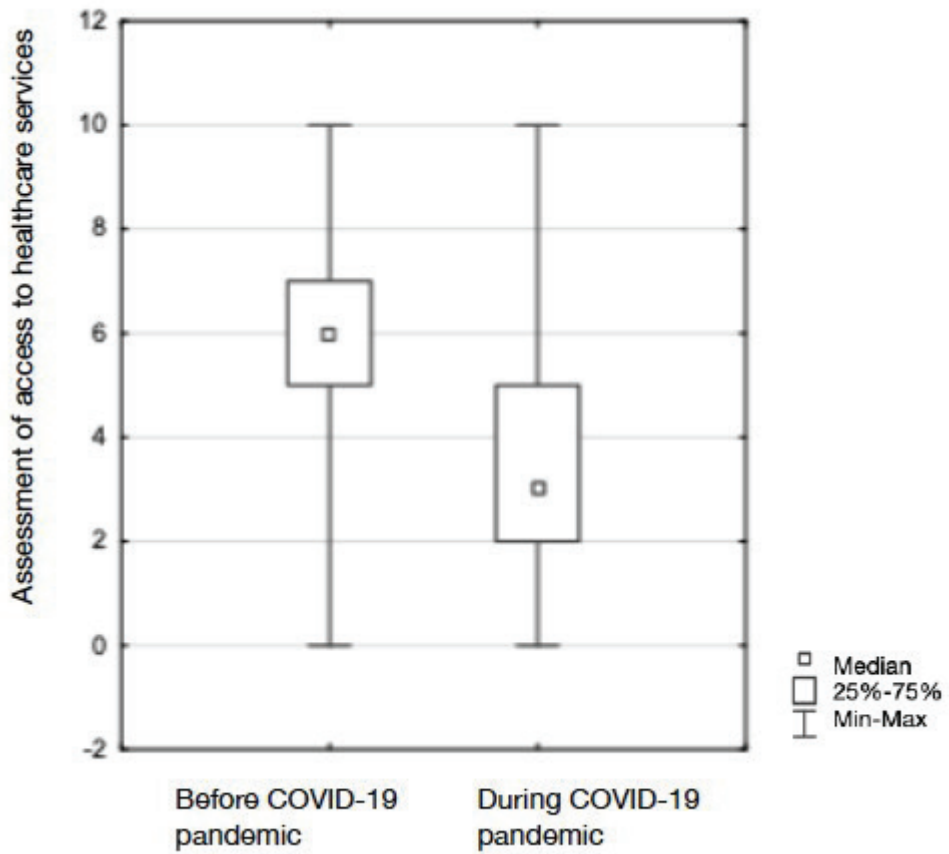
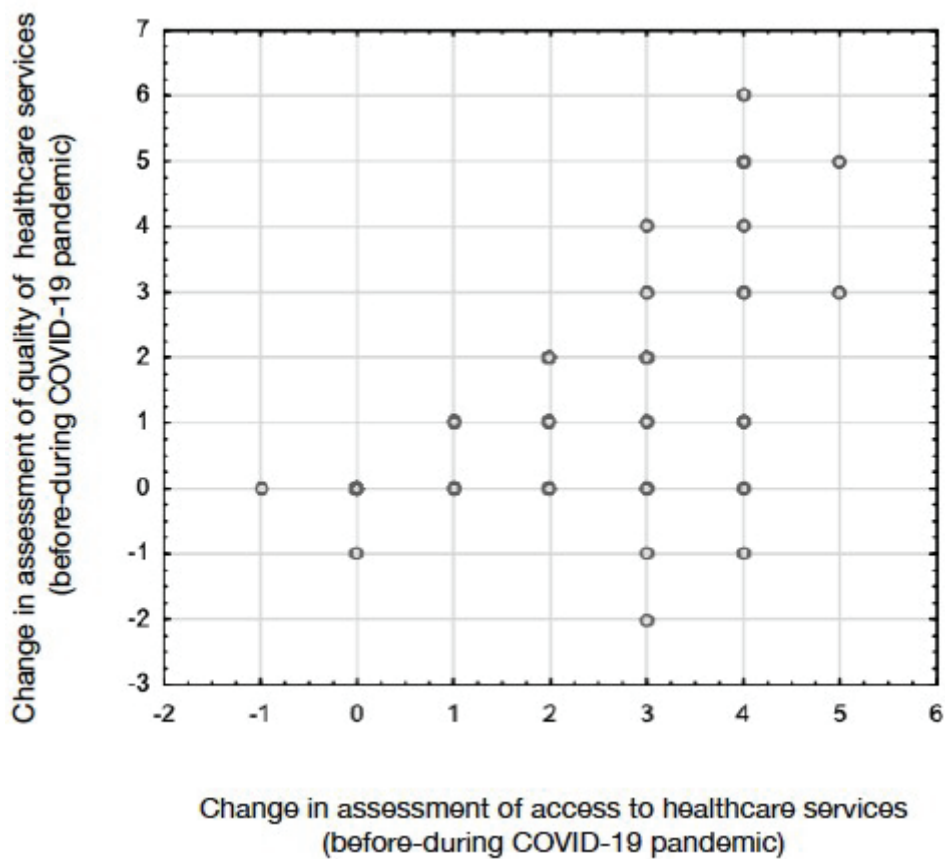


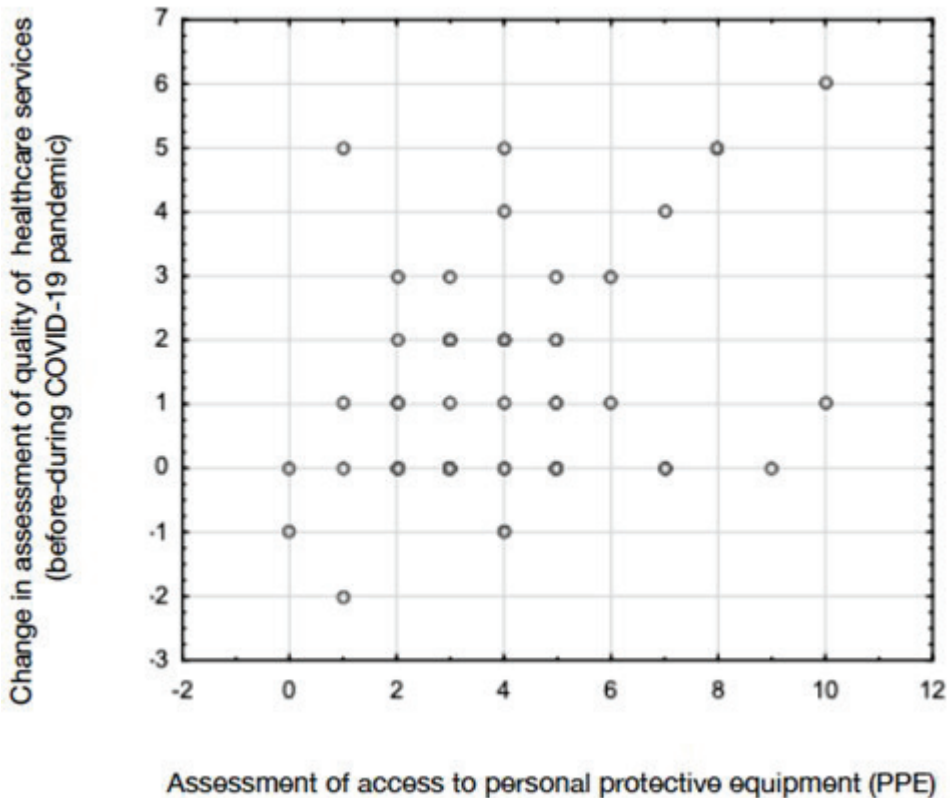
Figure 2. Correlation between accessibility to and quality of healthcare services according to doctors



Access to PPE

A correlation was found between the assessments of access to PPE and of the quality of healthcare service: the higher the rating of PPE accessibility, the higher the change ($p=0.045$) (Figure 3). Based on the Kruskal–Wallis test, a comparison of the doctors' assessment of access to PPE between medical facilities providing state-funded healthcare services and those providing private healthcare services showed no statistically significant differences ($p=0.860$). Based on Spearman's r_s rank correlation coefficient, there was no correlation between the quality of services provided and access to PPE ($p=0.679$).

Figure 3. Correlation between the accessibility of PPE and the quality of healthcare services



Work Comfort

Statistically significant differences in the doctors' assessment of work comfort were found between healthcare professionals who stated that appointment times were reduced ($p=0.037$) (Figure 4). Based on Spearman's r_s rank correlation coefficient, a correlation was found between the quality of services provided and work comfort ($p=0.001$): the higher the rating of one's work comfort, the higher the rating of the quality of services provided (Figure 5). Also, it was found that the higher the rating of accessibility to PPE, the higher the rating of one's comfort at work ($p=0.008$). There was no relationship between the assessment of work comfort and the rating of healthcare service quality ($p=0.314$). Also, the comparison, based on the Kruskal-Wallis test, of doctors' assessment of work comfort revealed no differences ($p=0.770$) (Table 2).

Figure 4. Comparison of doctors' assessment of work comfort between two groups in relation to its perceived reduction in visit time during the pandemic

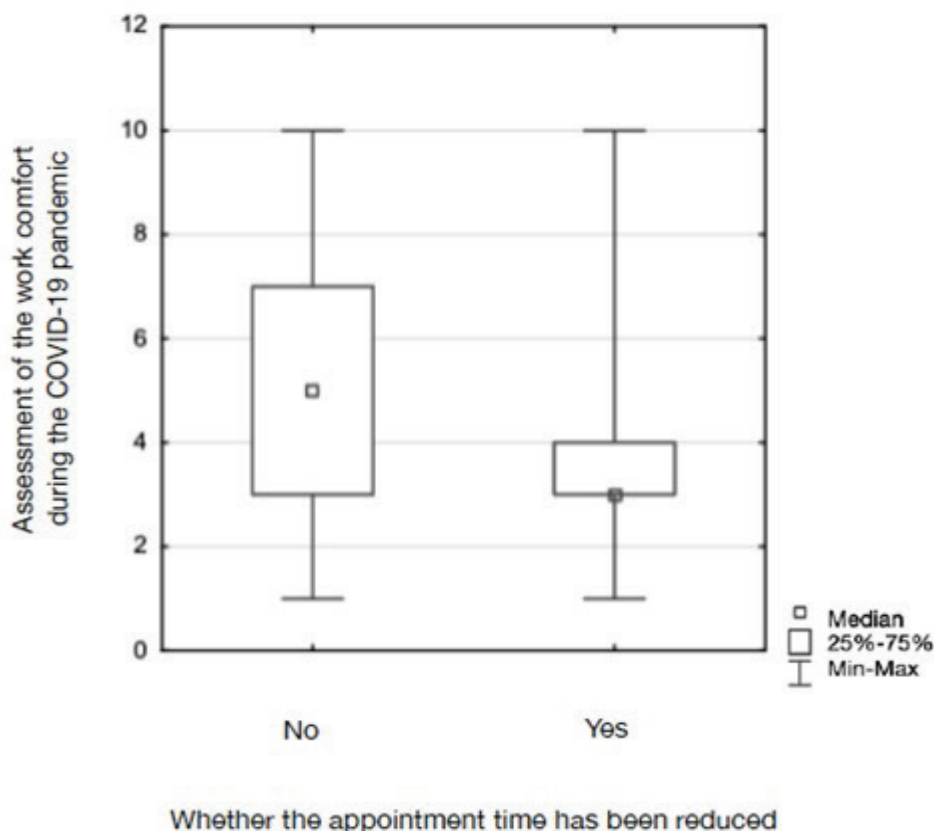
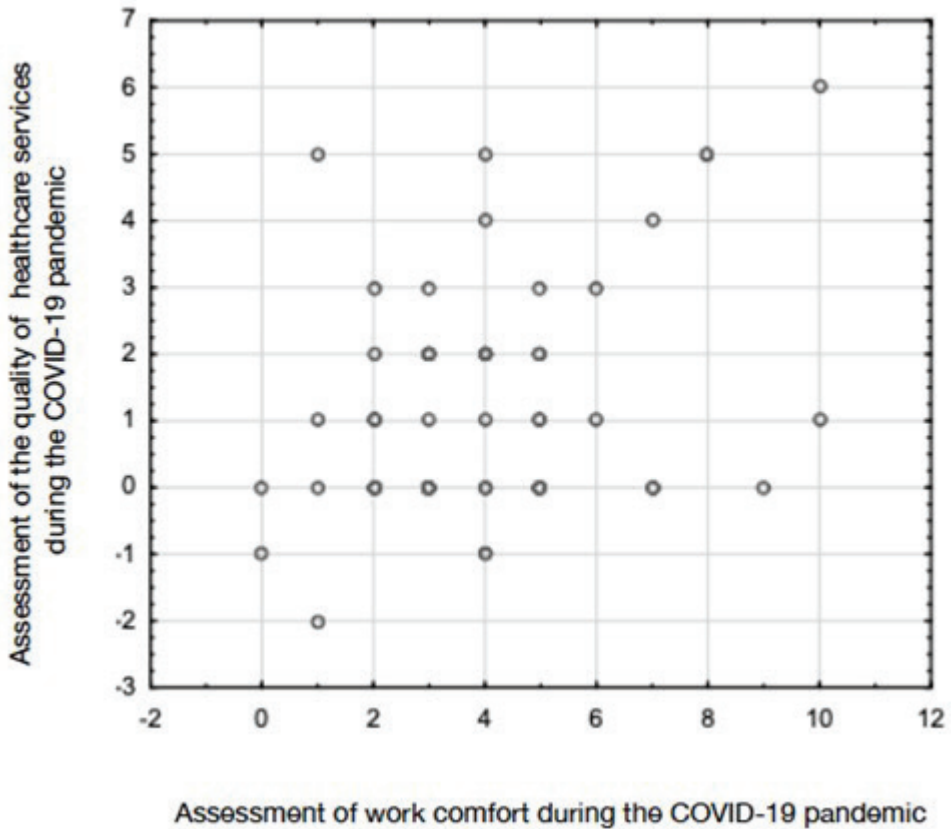


Figure 5. Correlation between healthcare service quality and work comfort**Table 2.** Descriptive statistics for ordinal data

Variable	N	Median	Min	Max	Lower Quartile	Upper Quartile
Assessment of accessibility to healthcare services BEFORE the pandemic	70	6,00	0,00	10,00	5,00	7,00
Assessment of accessibility to healthcare services DURING the pandemic	70	3,00	0,00	10,00	2,00	5,00
Assessment of quality of healthcare services BEFORE the pandemic	70	7,00	1,00	10,00	5,00	8,00
Assessment of quality of healthcare services DURING the pandemic	70	5,00	0,00	10,00	3,00	7,00
Assessment of access to personal protective equipment	71	4,00	0,00	10,00	3,00	5,00
Assessment of perceptions of doctors' work comfort level during the pandemic	69	5,00	1,00	10,00	3,00	7,00

Discussion

The COVID-19 outbreak has affected almost every aspect of human life. The highly infectious nature of the virus and the high morbidity and mortality rates associated with it have caused people to fear for their own lives, including healthcare workers as well. Furthermore, reduced accessibility of personal protective equipment increased the risk of SARS-CoV-2 infection (Kim, 2021; Chemali et al., 2022). The COVID-19 pandemic also led to reduced access to non-COVID-19 healthcare services worldwide (Tuczyńska et al., 2021). Doctors had limited ability to treat those requiring urgent medical care. Preventive and follow-up appointments were postponed. Patients who suffered from COVID-19 or were quarantined and required urgent care were simply referred to special wards with epidemiological restrictions (Paszynska et al., 2022). Furthermore, doctors and dentists were asked whether they provided online appointments during the pandemic. Notably, there were no differences in the assessments of access to and quality of healthcare services between those who did and those who did not have online appointments. This finding requires comprehensive research, for although telemedicine was authorized by the Polish state relatively recently (seven years ago), there was a significant increase during the pandemic in the use of telemedicine services in the form of video calls (Binder-Olibrowska et al., 2022).

Firstly, in our study, it was revealed that physicians believe that access to healthcare services during the COVID-19 pandemic was lower than in the pre-pandemic period (Figure 1). In addition, the poor rating of the quality of healthcare services was related to the poor accessibility to these services. This is in line with other studies, which have shown that during the COVID-19 pandemic, pediatric and adult appointment times were reduced and that there were fewer diagnostic tests and admissions for elective and emergency procedures. Some patients missed out on critically needed care, such as vaccinations and life-extending interventions for cancer. Restrictions on movement, lockdowns, quarantines of healthcare workers, and staff shortages all contributed to the limited access (Pujolar et al., 2022; Moynihan et al., 2021).

Secondly, the study covered the aspect of access to personal protective equipment. The uninterrupted delivery and proper distribution of PPE to healthcare workers reduces the risk that doctors will be infected. The correct utilization of PPE is also important. There should be mandatory training in the correct use of PPE. Reports worldwide indicate that the deliveries of PPE to medical facilities were either insufficient or of poor quality. The problem affected public and private medical facilities, yet the shortage of PPE has improved over time (Razu et al., 2021; Chaka et al., 2022). That explains the correlation between the quality of healthcare services and access to PPE. The study showed that the better the access to PPE, the higher the quality of healthcare services was rated. On the other hand, no statistical differences in access to PPE between doctors providing state-funded and privately funded services were found. Healthcare professionals' perceptions

of limited support from medical institutions and local public health authorities concerning the accessibility of PPE indicate that there is still much to be done in this field (Delgado et al., 2020).

Finally, the questionnaire asked respondents to rate their work comfort during the COVID-19 pandemic. The study showed that the greater the doctors' comfort at work, the higher their rating of the quality of healthcare services provided during the pandemic (Figure 5). Comfort at work also depended on access to PPE: the better the access to PPE, the more comfort at work. Ensuring adequate working conditions for physicians during the pandemic was crucial, since they played a key role in combating the pandemic and were potentially the most vulnerable to contracting the disease due to their direct contact with people. Access to adequate information on PPE is associated with reduced risk perception and affects work comfort (Chemali et al., 2022; Savoia et al., 2020). In an epidemic, the healthcare system and medical personnel should learn about epidemic prevention and should engage in the front line of COVID-19 pandemic prevention and management (Yang et al., 2022).

This study had some limitations. Firstly, it focused on more general populations of healthcare professionals rather than those who may have had direct contact with COVID-19 patients. Secondly, the results of this study are based on a self-report questionnaire with a cross-sectional design distributed to a small number of doctors, which may not represent the true situation. Finally, the recruitment of participants was based on their willingness to participate and their direct presence at the University facilities during the distribution of questionnaires. Despite these limitations, the study demonstrates the significant issues physicians faced during the COVID-19 pandemic and provides a foundation for expanding the study to a larger, more diverse group of respondents.

Conclusions

Doctors and dentists, despite being at high risk of infection, were a key resource in combating the SARS-CoV2 virus. The comfort of doctors in the unusual, demanding conditions posed by the pandemic was affected by the accessibility of personal protective equipment. Moreover, doctors stated that the comfort of their work was impaired by the shortened appointment times. The questionnaire also revealed that doctors and dentists almost unanimously agreed that access to healthcare services had diminished, significantly impacting the quality of these services. The opinions of doctors and other healthcare providers, as the professional group closest to the difficulties of a pandemic, should be highlighted and widely considered.

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