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Family Physicians' Perceptions of Primary Health Care Use in Bosnia and Herzegovina during the Covid-19 Pandemic, a Cross-sectional Study

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Abstract

Objectives. The main objective of this paper was to examine the perceptions of family physicians on the use of primary health care in Bosnia and Herzegovina during the COVID-19 pandemic. **Materials and Methods.** A cross-sectional study was conducted using a short online questionnaire that was sent to primary care physicians in Bosnia and Herzegovina from April 20th, 2022, to May 20th, 2022. **Results.** The research sample consisted of 231 doctors of primary health care from Bosnia and Herzegovina, with an average age of 45 years and 85% women. About 70% of participants reported having COVID-19 at least once from March 2020 to March 2022. Participants had an average of 1,986 registered patients and approximately 50 encounters per day. The study revealed a high degree of reliability between test-retest measurements, with a single measure Intraclass correlation coefficient of 0.801, and internal consistency determined using Cronbach's alpha of 0.89. Participants reported that the following health services were most affected during the COVID-19 pandemic: care for patients with chronic diseases, home visits, navigating the health system with patients making appointments with specialists, cancer screening, and preventive health services. The study also found statistically significant perceived differences in the use of these health services based on age, gender, postgraduate education in family medicine, participation in COVID-19 clinics, and personal history of Covid-19. **Conclusion.** There were significant disturbances to the use of primary health care during the COVID-19 pandemic. Future research could investigate patient outcomes compared to family physician perceptions.

Key Words: COVID-19 ▪ Primary Health Care Utilization ▪ Routine Care Disruption ▪ Bosnia and Herzegovina.

Introduction

The World Health Organization declared coronavirus disease (COVID-19) a global pandemic over two years ago. After the first COVID-19 cases in Bosnia and Herzegovina (BiH), on March 5th, 2020, the government announced the implementation of preventive measures on March 16, 2020, with several key restrictions (e.g., closure of school institutions, universities, cafes, bars, and restaurants; public and city transport ban; and comprehensive patient care reorganization in the public health system) (1). All European countries imposed similar restrictions, including curfews (2).

Primary care is where most health care takes place, and where most people have trusted health-related relationships, making its physicians the 'eyes and ears' of the health system. Primary care is frequently at the mercy of the government's policies and laws resulting in job losses and difficulty in providing patient care. Clinicians were relocated to COVID-19-only clinics or other specialist departments, because of primary care workforce adjustments. Because of primary care's generalist nature, physicians were directed to wherever they were required, with little control over daily scheduling decisions (3). Furthermore, clinicians were subjected to additional stress and uncertainty when they were required to work double shifts to fill in for nursing staff shortages or other physicians placed under lockdown protocols, or

who were required to quarantine after being exposed or infected. Health Care workers declared that they felt anxious during the pandemic. Most of them declared they were upset due to routine changes, and significantly affected by the Covid-19 pandemic (4). Globally, the pandemic created significant disruptions to healthcare systems. Several countries' healthcare systems encountered major staffing issues, reflecting both an increase in demand and a loss in workers (5).

Healthcare workers were reassigned, volunteers were sought, and non-emergency healthcare services were reduced or eliminated in response. Teleconsultations and remote monitoring are now available at several hospitals in Hong Kong, Singapore, South Korea, Norway, and the United Kingdom, allowing patients to receive care without having to travel. Furthermore, shortages of personal protective equipment have forced medical personnel to work without proper protection in some nations (6).

As a respond to the COVID-19 pandemic, all outpatient clinics were closed, and only emergency cases and refills of medications were treated. Patients' fears that they might get Covid-19 or pass it on, as well as their worries about breaking the lockdown rules, led to significant changes in family medicine practices during this time compared to the same time in 2019. In response to the COVID-19 epidemic, all family medicine clinics were halted, and only urgent care visits and prescription refills were processed (7). As a result of giving priority to the provision of acute and urgent treatment, other services, most notably the management of chronic diseases and preventative care, were disrupted. This was especially problematic in light of the fact that the situation was deemed an emergency (8).

The COVID-19 epidemic globally altered healthcare needs and requests at all levels of the organization's healthcare system, including primary health care and its family medicine concept of healthcare. This concept of patient treatment was shattered during the pandemic, and family medicine teams were preoccupied with the treatment of COVID-19 patients and their post-COVID treatment, as opposed to the treatment of typical patient requests (the most common diseases, especially in elderly patients with existing chronic diseases, mental illness, and malignant diseases) (9).

A recent study in Sarajevo Canton found that all of family medicine's principles have been adversely affected. Regular access to health care was jeopardized for three primary reasons: difficult access for patients to family medicine clinics as a result of the crisis headquarters' decision and lockdowns, decreased physician and nurse staffing as a result of at least 20% – 30% of physicians and nurses working in COVID-19 outpatient clinics and approximately 10% on sick leave at all times due to COVID-19, and extremely difficult telephone access to family physicians as a result of the same lines being used by COVID-19 patients (10).

The set aim of our research was to examine the perceptions of family physicians on the use of primary health care in BiH during the COVID-19 pandemic and to find differences between family medicine perceptions of use in relation to participants' level of postgraduate education, location of medical practice, COVID-19 infection status, number of registered patients, the average number of patient encounters, and the amount of time spent away from their primary medical practice.

Methods

A cross-sectional study design was used. All members of the research team reviewed and revised the survey questions to ensure clarity. The final web-based survey included 12 demographic-based questions and 10 statements that aligned with the study objectives.

The research used a questionnaire that was constructed through a focus group of 7 doctors of family medicine who are involved in research, in order to collect data to examine the perceptions of family physicians on the use of primary health care in BiH during the COVID-19 pandemic and to find differences between family medicine perceptions of use in relation to participants' level of postgraduate education, location of medical practice, COVID-19 infection status, number of registered

patients, the average number of patient encounters, and the amount of time spent away from their primary medical practice. The questionnaire was finalized after ambiguous and unsuitable questions were modified based on the comments of four independent family medicine physicians.

The final survey was pilot tested with multiple healthcare professionals who were not involved in the initial creation of the surveys. The same group of 20 physicians repeated the survey after ten days for test-retest validity purposes. Approval was provided by the Scientific Teaching Council of the Faculty of Medicine at the University of Sarajevo. All study activities were conducted in accordance with the Declaration of Helsinki.

An online survey was distributed to email addresses of family physicians working in primary care clinics in BiH. The respondents were required to choose whether the pandemic: did not disturb, caused minimal disturbance, caused moderate disturbance, caused much disturbance, or caused maximal disturbance. A convenience sampling technique was used. The study population included physicians working in family medicine who were able to complete a web-based survey in Bosnian, and self-reported as being employed within a Primary Healthcare Centre in Bosnia and Herzegovina during the period from March 2020 to March 2022. Healthcare professionals who did not work in that period were excluded. Two types of physicians can work in family medicine in Bosnia and Hercegovina: medical doctors with or without postgraduate education in the field. Bosnia and Herzegovina offers two options for postgraduate training in family medicine: a one-year programme of additional training in the field and a four-year family medicine specialty programme (11). Post-graduate education is organized according to the a WONCA global standards for postgraduate family medicine education (12). Initially, 400 physicians were contacted by email, and snowball recruiting was encouraged. The publicly available contact information of the medical practices was also used. Of those contacted, 169 declined to participate in the study due to lack of interest or time or did not respond after initial contact. Consent was provided by all participants before starting the survey. Physicians with additional training in family medicine were grouped with family medicine specialists during the analysis. Primary Healthcare Providers were sent an invitation to participate in the web-based survey through recruitment emails. The web-based survey was open for 30 days from April 20, 2022, until May 20, 2022. No recruitment incentive was used.

Statistical Analysis

Frequencies and proportions were used to present participant demographic data. The participant responses for the 5-point Likert scales were converted into a number-based system where (1=No disturbance), (2=Minimal disturbance), (3=Moderate disturbance), (4=Significant disturbance), and (5=Maximal disturbance). Using graphical methods (histograms) and the Shapiro-Wilk test, a normal distribution of variables was determined. Since the data was not normally distributed, nonparametric tests were used. The Mann-Whitney U test was employed to assess whether t a statistically significant difference existed in the dependent variable for independent variables. Dependent variables were part of the health care utilisation scale (14 questions): Routine medical care, Management of patients with chronic disease, Management of patients with acute disease (not including COVID), Patients' ability to get in contact with their family doctor, Patients' ability to visit their primary healthcare provider, Home visits, Patients' ability to receive their medications on time, Arranging specialist appointments, Preventative health services, Cancer screening, Navigating the healthcare system with the patient, Patients' ability to contact the family medicine office by telephone, Staff Cohesion and Overall functioning of the family medicine office. Independent variables were Age, Gender, Postgraduate training in family medicine, Work Experience, Location of practice, Number of registered patients, Work in COVOD-19 clinics, and Personal history of COVID-19. A P-value less than 0.05 was considered statistically significant.

The questionnaire's reliability was evaluated utilizing internal consistency and test-retest reliability. Typically, internal consistency is measured with an alpha coefficient (Cronbach's alpha), which reveals the degree to which questionnaire items are interrelated or whether they measure the same construct consistently. Cronbach's alpha coefficient was deemed acceptable (values between 0.6 and 0.7) and exhibited high internal consistency (values between 0.7 and 0.9) (13, 14). A test-retest reliability analysis is conducted to ascertain the questionnaire's consistency in measuring subject performance. Since standard limits for test-retest reliability have not been clearly defined, all conclusions should be made with caution. We considered Intraclass Correlation Coefficient (ICC) <0.5 to be poor, 0.50 to 0.75 to be moderate, 0.75 to 0.90 to be acceptable, and >0.90 to be excellent (15, 16). We also calculated Spearman's rank-order correlation (rs) to measure test-retest reliability. The statistical analyses were performed using IBM SPSS Statistics V25.

Table 1. Demographic Data of Study Participants (N=231)

Demographic	N (%)
Gender	
Female	196 (85.3)
Male	35 (14.7)
Age ($\bar{x}$±SD)	44.9±10.2
Education	
Medical Doctors	64 (27.7)
Postgraduate education in Family Medicine*	167 (72.3)
Work Experience ($\bar{x}$±SD)	15.6±10.1
Number of registered patients ($\bar{x}$±SD)	1986.4±511
Average daily encounters from March 2020 - March 2022 ($\bar{x}$±SD)	50.5±21.4
Participants reported having covid at least once	161 (69.7)
Time Spent Away from Primary Office because of work in the COVID-19 clinic	
Did not work in COVID clinics	34 (14.7)
Up to 30% time	110 (47.6)
≥30% time	87 (37.7)

*Program of additional training in family medicine (N=11; 4,8%) and family medicine specialization (N=156; 67.5%).

Results

The study sample consisted of 231 primary health care doctors: 64 medical doctors, and 167 family medicine physicians with postgraduate education in family medicine from all over BiH. The response rate was 58%. The average age of the respondents was 45 years old and approximately 85% were women. All participants worked in primary care and had a mean professional work experience of 16 years. In total 81% worked in urban locations and 98% worked in the public sector. About 88% of respondents claim to have registered patients and of those, they had an average of 1986 registered patients. During that same period, the respondents averaged about 50 encounters per day.

Roughly 70% of the participants reported having COVID-19 at least once from March 2020 to March 2022. Up to 34% claimed to have had COVID-19 at least twice. About 15% spent no time away from their primary office, whereas almost half spent up to a third of their time away from their primary office. Regarding having registered patients, only 10% out of the all participants do not have registered patients. Furthermore, 49% had <1900 patients, and 41% had >1900 patients. About half of the participants had roughly 50 patient encounters per day (Table 1).

According to reports from the Public Health Institutes, there are 1,744 physicians in family medicine in Bosnia and Herzegovina. Out of the total number, 746 (42.8%) were family medicine specialists, while the remaining physicians were medical doctors without postgraduate training in the discipline. The average age of specialists in family medicine was 49.6 (±12.7), and 82.6% were female (16, 17).

Reliability

Internal consistency was determined using Cronbach's test α=0.89 which is considered as a good internal consistency. There was not a question that needed to be delayed to improve Crombach's α (Table 2).

Twenty participants of the total sample were asked to complete the questionnaire twice with 7-10 day intervals to assess the test–retest

Table 2. Questionnaire Item-Total Statistics

Question	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Routine medical care	43.63	85.273	0.650	0.676	0.877
Management of patients with chronic disease	43.57	84.796	0.729	0.719	0.874
Management of patients with acute disease (not including COVID)	44.40	83.288	0.615	0.501	0.879
Patients' ability to get in contact with their family doctor	44.32	82.176	0.712	0.647	0.873
Patients' ability to visit their primary healthcare provider	44.15	82.863	0.642	0.557	0.877
Home visits	43.33	85.682	0.527	0.436	0.883
Patients' ability to receive their medications on time	45.21	87.286	0.510	0.462	0.883
Arranging specialist appointments	42.97	91.379	0.444	0.350	0.886
Preventative health services	42.77	92.065	0.375	0.515	0.888
Cancer screening	42.86	89.661	0.492	0.506	0.884
Navigating healthcare system with patient	43.16	90.127	0.553	0.456	0.882
Patients' ability to contact the family medicine office by telephone	44.60	83.559	0.579	0.518	0.881
Staff Cohesion	44.24	89.722	0.441	0.248	0.886
Overall functioning of family medicine office	44.04	85.858	0.684	0.511	0.876

Table 3. Intraclass Correlation Coefficient

Measures	Intraclass correlation[a]	95% Confidence interval		F Test with True value 0			
		Lower bound	Upper bound	Value	df1	df2	Sig
Single	0.801[b]	0.563	0.916	9.027	19	19	0.000
Average	0.889	0.720	0.956	9.027	19	19	0.000

Two-way random effects model where both people effects and measures effects are random: a. Type C intraclass correlation coefficients using a consistency definition. The between-measure variance is excluded from the denominator variance, b. The estimator is the same, whether the interaction effect is present or not.

reliability. Mean age of test-retest responders was 49.55 (±7.94), and 17 (85%) of them were women. A high degree of reliability was found between test-retest measurements. The single measure ICC was 0.801 with a 95% confidence interval from 0.563 to 0.916 ($F(19,19)= 9.027$, $P<0.01$). Table 3 Correlation between two tests was considered good. ($r_s =0.790$, $P<0.01$).

The mean response of the overall use of primary healthcare is shown in Table 4. A patient's ability to receive their medication on time was the least affected with an average response of minimal disruption. However, participants found that arranging specialist appointments, cancer screening, and preventative health services proved to be the most affected.

Table 4. Participants' Perceptions of Primary Health Care Services Use during the Covid-19 Pandemic

Primary Health Care Service	1* N (%)	2† N (%)	3‡ N (%)	4§, N (%)	5‖ N (%)	($\bar{x}$±SD)
Patients' ability to receive their medications on time	114 (49.4)	49 (21.2)	40 (17.3)	21 (9.1)	7 (3)	1.97±1.16
Patients' ability to contact the family medicine office by telephone	76 (32.9)	35 (15.2)	48 (20.8)	54 (23.4)	17 (7.4)	2.57±1.35
Management of patients with acute disease (Excluding COVID)	52 (22.5)	48 (20.8)	55 (23.8)	53 (22.9)	23 (10)	2.78±1.31
Patients' ability to get in contact with their family doctor	41 (17.7)	47 (20.3)	74 (32.0)	44 (19)	25 (10.8)	2.86±1.24
Staff Cohesion	33 (14.3)	24 (10.4)	113 (48.9)	47 (20.3)	14 (6.1)	2.94 ±1.06
Patients' ability to visit their primary healthcare provider	34 (14.7)	51 (22.1)	58 (25.1)	51 (22.1)	37 (16)	3.03±1.30
Overall functioning of family medicine office	15 (6.5)	38 (16.5)	100 (43.3)	57 (24.7)	21 (9.1)	3.13±1.01
Routine medical care	15 (6.5)	15 (6.5)	81 (35.1)	70 (30.3)	50 (21.6)	3.55±1.10
Management of patients with chronic disease	7 (3.0)	25 (10.8)	69 (29.9)	82 (35.5)	48 (20.8)	3.61±1.03
Home visits	18 (7.8)	20 (8.7)	41 (17.7)	55 (23.8)	97 (42)	3.84±1.27
Navigating healthcare system with patient	1 (0.4)	7 (3.0)	53 (22.9)	97 (42.0)	73 (31.6)	4.01±0.84
Arranging specialist appointments	1 (0.4)	11 (4.8)	34 (14.7)	79 (34.2)	106 (45.9)	4.21±0.89
Cancer screening	4 (1.7)	11 (4.8)	28 (12.1)	54 (23.4)	134 (58)	4.32±0.97
Preventative health services	5 (2.2)	9 (3.9)	19 (8.2)	56 (24.2)	142 (61.5)	4.41±0.94

*No disturbance; †Minimal disturbance; ‡Moderate disturbance; §Significant disturbance; ‖Maximal disturbance.

Age

Participants under the average age of 45 considered that COVID-19 significantly negatively affected the patients' ability to contact the family medicine office by telephone (U=5640.000, P<0.05) and the patients' ability to get in contact with their family doctor (U=5383.000, P<0.01). While participants above the average age were more likely to perceive that Staff Cohesion (U=5510.500, P<0.05) and Preventive health services were significantly disrupted (U=5667.500, P<0.05) (Table 5).

Gender

The results indicated that women had the perception that the COVID-19 pandemic significantly disrupted Cancer screening (U=2351.50, P<0.01) and Preventative health services (U=2305.00, P<0.01) (Table 6).

Table 5. Participants' Age Differences in Perception of Primary Health Care Services

Primary Health Care Service	Age		Mann-Whitney U	P
	<45	≥45		
	(N=106)	(N=125)		
Patients' ability to contact the family medicine office by telephone	125.51	106.94	5640.000	0.046
Patients' ability to get in contact with their family doctor	125.29	108.12	5383.000	0.005
Staff Cohesion	106.97	123.66	5510.500	0.029
Preventative health services	104.28	125.94	5667.500	0.043

Table 6. Gender Differences in Perception of Primary Health Care Services Use

Primary Health Care Service	Gender		Mann-Whitney U	P
	Women	Men		
	(N=197)	(N=34)		
Cancer screening	121.30	85.29	2351.50	0.001
Preventative health services	121.06	86.66	2305.00	0.001

Postgraduate Education

The results indicated that medical doctors had a significantly higher perception that the COVID-19 pandemic has impeded the patients' ability to contact the family medicine office by telephone (U=4231.500, P<0.05) than family physicians. In contrast, family physicians perceived that home visits (U=4455.500, P<0.05), cancer screening (U=4342.000, P<0.05), and preventative health services were significantly more disrupted (U=4458.000, P<0.05) (Table 7).

Participation in Covid-clinics Work

Participants who spent less than 30% of their time away from their workplaces working at COVIDid-19 clinics were more likely to assume that the pandemic i significantly mpacted the following services: Patients' ability to contact the family medicine office by telephone U=3995.500, P<0.05), Patients' ability to get in contact with their family doctor (U=3865.000, P<0.05), Overall functioning of the family medicine office (U=4085.500, P<0.05) and Cancer screening (U=3956.500, P=0.05)(Table 8).

Table 7. Differences in Perception of Primary Health Care Services Use between Participants with Postgraduate Education (Family Physicians) and Medical Doctors

Primary Health Care Service	Level of Education		Mann-Whitney U	P
	MD*	FP†		
	(N=64)	(N=167)		
Patients' ability to contact the family medicine office by telephone	133.38	109.34	4231.500	0.012
Home visits	102.12	121.32	4455.500	0.040
Cancer screening	102.16	121.31	4342.000	0.011
Preventative health services	100.34	122.00	4458.000	0.028

*Medical doctor (no postgraduate education in the field); †Family physician (postgraduate education in the field).

Table 8. Differences in Perception of Primary Health Care Services Use between Participants who worked up to 30% and ≥30% Working Time Spent in Covid-19 Clinics

Primary Health Care Service	Work in Covid19 clinics*		Mann-Whitney U	P
	<30% of time	≥30% of time		
	(N=110)	(N=87)		
Patients' ability to contact the family medicine office by telephone	106.178	89.93	3995.500	0.038
Patients' ability to get in contact with their family doctor	107.36	88.46	3865.000	0.018
Overall functioning of the family medicine office	106.53	89.48	4085.500	0.046
Cancer screening	105.36	90.96	3956.500	0.027

*The statistical analysis excluded 34 participants, which accounted for 14.7% of the total sample, due to their non-involvement in Covid-19 clinics.

Personal History of Covid-19 Illness

Participants with a personal history of COVID-19 illness considered that the pandemic had a significant effect on the following variables: Management of patients with acute disease (Excluding COVID) (U=4085.500, P<0.05), Patients' ability to get in contact with their family doctor (U=4085.500, P<0.05), Staff Cohesion (U=4085.500, P<0.05), Patients' ability to visit their primary healthcare provider (U=4085.500, P<0.05)(Table 9).

The study found no statistically significant differences in the dependent variables in relation to the rural and urban locations of participants or among participants with 1900 or more registered patients and those with fewer than 1900 registered patients. The cut-off value 1900 was chosen to correspond to the median number of self-reported registered patients in this study.

Discussion

Our study revealed that family physicians working in BiH perceived there to be disruptions in all aspects of primary healthcare use caused by the COVID-19 pandemic especially in services such as arranging specialist appointments, cancer screening, and preventative health services. This highlights the challenges faced by primary health care doctors in providing comprehensive care during the pandemic. Similarly, to our results, research conducted across the globe revealed that the COVID-19 pandemic has disrupted the use of primary healthcare in many ways. The findings of research conducted in Sweden (18), China (19), and Iran (20) indicate that the COVID-19 pandemic has resulted in a significant decrease in the quantity of services provided by primary health care facilities. According to their findings, there was a substantial drop in the total number of outpatient visits.

The results of a qualitative study among primary care practitioners in Belgium showed that respondents' perceptions of the impact of the COVID-19 pandemic on primary care was similar to those shown in our research. All participating practices reported drastic changes in organization with a collective shift to care for COVID-19, a reduction in chronic care activities and fewer consultations in primary health care (21).The perspectives of health workers in primary health care on the influence of the pandemic on comprehensive health care were investigated as part of the cross-sectional PRICOV-19 study, which was carried out in 38 different countries. The findings of this study similar to our results, indicate that healthcare professionals working in PHC were constrained in their ability to provide high-quality care, the possibility of home treatment and home visits, consultations with urgent acute care facilities or the prescription of medications, and that this circumstance put the comprehensive approach of PHC in jeopardy (22).

Our results showed that the participants felt that a patient's ability to receive their medications on time had the least disruptions. On the contrary, participants perceived cancer screening and preventive services to have been the most disrupted. In Bosnia and Herzegovina, there is an opportunistic screening available for breast and cervical

Table 9. Differences in Perception of Primary Health Care Services Use between Participants with a Personal History of Covid-19 Illness and Those Which Not Had Covid-19

Use of Primary Health Care	Personal history of Covid-19		Mann-Whitney U	P
	No	Yes		
	(N=70)	(N=161)		
Management of patients with acute disease (Excluding COVID)	99.28	123.27	4464.500	0.010
Patients' ability to get in contact with their family doctor	96.86	124.32	4295.500	0.003
Staff Cohesion	99.68	123.10	4492.500	0.009
Patients' ability to visit their primary healthcare provider	98.72	123.51	4425.500	0.008

cancer, and guidelines have been issued for the early detection of childhood cancers. However, it is still lacking routine cancer screening programmes and general cancer management guidelines, but this does not diminish the importance of this area of activity and the role of family physicians in promoting and referring to their implementation (23). A study in the Netherlands found that during the first three months of the epidemic, the number of cancer cases was about 75% of what they usually are. The national breast, colorectal, and cervical cancer screening programs have been suspended temporarily to reduce the burden on the healthcare system caused by COVID-19. In the Netherlands, it's possible that about 5,000 new cancers haven't been found (yet) because care has been put off. If the number of cancer cases in the Netherlands is the same as in Europe, 245,000 new cancers are not diagnosed (24).

Based on the level of postgraduate training, there were statistically significant differences in the perceptions of primary healthcare use. The participants with postgraduate training in family medicine in our study perceived there to be greater disruptions in preventative health services, cancer screening, and home visits. Similarly to our study, the study in the United States found that the actual problem was the long-term repercussions of failing to recognize, prevent, and treat illnesses like diabetes and hyperlipidaemia-related heart risks (25). In Canada and South Africa, all cancer and cardiovascular disease screenings have been discontinued. Home visits and care have ceased, and there were decreased number of chronic care for non-communicable diseases (3).

The location of the family medicine practice was divided into rural and urban. There were no statistically significant differences in the perceptions of primary healthcare use based on the location of the practice. Opposite to our results, the study on physicians in rural Germany found that family physicians stated that they did not believe their patients would suffer any health consequences because of the pandemic. Practice organization and healthcare delivery changed quickly. Telephone, home, and practice window consultations increased. Family physicians developed personal relationships to promote healthcare and prevent health problems (26).

Similar to the findings of our study, general practitioners in the Netherlands shifted from face-to-face to telephone contact for chronic respiratory disease care during the COVID-19 pandemic. In family medicine practices, the proportion of face-to-face contacts decreased substantially, while the proportion of telephone contacts increased significantly (27, 28). During the pandemic, family physicians in Croatia encountered changes in work organisation and an increase in workload. Due to the increase in virtual contacts and telephone consultations, the workload has increased despite the reduction in face-to-face consultation time (29).

A like our results, a study in Greece found that hospital service rationalization slowed diagnostic testing and review of referred patients; referring patients was difficult for general practitioners who frequently failed (30). Furthermore, international reviews found that primary care remained the first point of contact, with telemedicine being used to handle acute non-COVID and COVID-related presentations that did not necessitate in-person management (8, 31).

In our study, participants who did not have COVID-19 perceived there to be fewer disruptions in the management of acute diseases (excluding COVID-19), their patients' ability to get in contact with their family doctor, staff cohesion, and their patients' ability to visit the primary healthcare provider. Researchers in Türkiye, looking into the experiences of family physicians who were infected, found that family physicians' social relationships with their co-workers had eroded because of the lack of safety in their work environment due to the high risk of infection, making them feel increasingly lonely at work (32). Since many primary care doctors were asked to fill different roles away from their primary practice, the participants were asked how much time they spent away from their primary office.

Similar to our results, the multinational study found this to be the case around the world, and some clinicians in Italy took up the tasks of various types of primary care clinicians, such as nursing

procedures from home health care personnel who were no longer able to work in-house due to governmental restrictions, while others shifted departments to handle COVID-19 patients. In Bosnia and Herzegovina COVID-19 clinics and call centres with family medicine staff were established. More than 20% of all family physicians and nurses worked in these facilities (3).

Limitation of this Study

The major limitation of this study is the presence of recall bias since the pandemic began over two years ago, so there may be errors caused by inaccurate or incomplete recollections from study participants regarding their experiences from March 2020 to March 2022. Another limitation is the use of Likert scales since two respondents may give the same value having had different experiences. Another limitation of the Likert scale is that respondents tend to agree with the statements shown, which is known as acquiescence bias. The study is also limited by the fact that perception is very subjective, and therefore our results are not able to be standardized and generalized.

Conclusion

This study brought light to the perceptions of family physicians in BiH on the use of primary health care during the pandemic. The use of primary health care was perceived to be disrupted, especially the preventative services, cancer screening, the patient's ability to get in contact with their family doctor, home visits, management of patients with chronic disease, arranging specialist appointments, patient's ability to contact the family medicine office by telephone, the management of patients with acute disease (excluding COVID-19), patients ability to visit their primary healthcare provider, and staff cohesion. Further research into the negative perceptions is needed to investigate which other factors contribute to those perceptions and if they can be improved upon, so that family physicians can enhance the quality of patient care and be better prepared for the next pandemic.

What Is Already Known On this Topic:
It is now well known that the COVID-19 pandemic created massive disruptions to the provision and quality of primary health care around the world while causing a great amount of stress for family physicians. It is also known that family physicians have been on the front lines of the pandemic and have adjusted their practices in many ways throughout the pandemic.

What This Study Adds:
This study brings light to family physicians' perceptions toward the use of primary health care. It shows that certain factors have a role in how family physicians perceive different aspects of the use of primary health care, while other factors do not have an impact on their perceptions.

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References

1. Arapović J, Skočibušić S. The first two months of COVID-19 pandemic in Bosnia and Herzegovina: Single-center experience. Bosn J Basic Med Sci. 2020 May 29 [cited 2023 Apr 8]; Available from: https://www.bjbms.org/ojs/index.php/bjbms/article/view/4838.
2. Lupu D, Tiganasu R. COVID-19 and the efficiency of health systems in Europe. Health Econ Rev. 2022;12(1):14.
3. Taylor MK, Kinder K, George J, Bazemore A, Mannie C, Phillips R, et al. Multinational primary health care experiences from the initial wave of the COVID-19 pandemic: A qualitative analysis. SSM - Qual Res Health. 2022;2:100041.
4. Cheristanidis S, Kavvadas D, Moustaklis D, Kyriakidou E, Batzou D, Sidiropoulos E, et al. Psychological Distress in Primary Healthcare Workers during the COVID-19 Pandemic in Greece. Acta Med Acad. 2021;50(2):252-63.
5. Forman R, Atun R, McKee M, Mossialos E. 12 Lessons learned from the management of the coronavirus pandemic. Health Policy. 2020;124(6):577-80.
6. Han E, Tan MMJ, Turk E, Sridhar D, Leung GM, Shibuya K, et al. Lessons learnt from easing COVID-19 restrictions: an analysis of countries and regions in Asia Pacific and Europe. The Lancet. 2020;396(10261):1525-34.
7. Allan H, Al Quran T, Al Omary M. Family medicine practice challenges during Covid-19 outbreak, curfew and phased re-opening, lessons to be learned from jordanian experience. Ann Med Surg. 2021 Aug [cited 2023 Apr 8];68. Available from: https://journals.lww.com/10.1016/j.amsu.2021.102580.

8. Matenge S, Sturgiss E, Desborough J, Hall Dykgraaf S, Dut G, Kidd M. Ensuring the continuation of routine primary care during the COVID-19 pandemic: a review of the international literature. Fam Pract. 2022;39(4):747-61.
9. Zildzic M, Masic I. Relationship Between Education and Family Medicine Practice. What Did we Learn in Covid-19 Pandemic? Int J Biomed Healthc. 2021;9(4):282.
10. Jatic Z, Trifunovic N, Erkocevic H, Hasanovic E, Ceric K, Bajrami B, et al. Family Medicine During COVID-19 pandemic in Canton Sarajevo: Positive and Negative aspects. Mater Sociomed. 2022;34(1):44.
11. Walsh AE, WONCA Working Party On Education. WONCA Global Standards for Postgraduate Family Medicine Education. 2013 [cited 2023 Apr 16]; Available from: http://rgdoi.net/10.13140/RG.2.2.34231.73120.
12. Streiner DL. Starting at the Beginning: An Introduction to Coefficient Alpha and Internal Consistency. J Pers Assess. 2003;80(1):99-103.
13. Koo TK, Li MY. A Guideline of Selecting and Reporting Intraclass Correlation Coefficients for Reliability Research. J Chiropr Med. 2016;15(2):155-63.
14. Perinetti G. StaTips Part IV: Selection, interpretation and reporting of the intraclass correlation coefficient. South Eur J Orthod Dentofac Res. 2018;5(1):3-5. doi:10.5937/sejodr5-17434.
15. Matheson GJ. We need to talk about reliability: making better use of test-retest studies for study design and interpretation. PeerJ. 2019;7:e6918.
16. Šiljak S, Štrkić D, Janjić B, Vranješ S, Rodić Vukmir N, Jandrić L. Analysis of Population Health in Republic of Srpska, 2018 [Internet]. Public Health Institute, Republic of Srpska. 2018 [cited 2023 Apr 15]. Available from: https://www.phi.rs.ba/pdf/publikacije/ZDRAVSTVENO%20stanje%20stanovnistva%20Republike%20Srpske%20u%202018.%20godini,%20web.pdf.
17. Cilović Lagarija Š, Gusinac-Škopo A, Tahirović. Health statistics annual FB&H 2020 [Internet]. Institute for Public Health of Federation of Bosnia and Herzegovina. 2021 [cited 2023 Apr 15]. Available from: https://www.zzjzfbih.ba/wp-content/uploads/2021/12/Zdravstveno-statisti%C4%8Dki-godi%C5%A1njak-FBiH-2020.pdf
18. Ekman B, Arvidsson E, Thulesius H, Wilkens J, Cronberg O. Impact of the Covid-19 pandemic on primary care utilization: evidence from Sweden using national register data. BMC Res Notes. 2021;14(1):424.
19. Xiao H, Dai X, Wagenaar BH, Liu F, Augusto O, Guo Y, et al. The impact of the COVID-19 pandemic on health services utilization in China: Time-series analyses for 2016–2020. Lancet Reg Health - West Pac. 2021;9:100122.
20. Rezapour R, Dorosti AA, Farahbakhsh M, Azami-aghdash S, Iranzad I. The impact of the Covid-19 pandemic on primary health care utilization: an experience from Iran. BMC Health Serv Res. 2022;22(1):404.
21. Danhieux K, Buffel V, Pairon A, Benkheil A, Remmen R, Wouters E, et al. The impact of COVID-19 on chronic care according to providers: a qualitative study among primary care practices in Belgium. BMC Fam Pract. 2020;21(1):255.
22. Van Poel E, Vanden Bussche P, Klemenc-Ketis Z, Willems S. How did general practices organize care during the COVID-19 pandemic: the protocol of the cross-sectional PRICOV-19 study in 38 countries. BMC Prim Care. 2022;23(1):11.
23. Winkelmann J, Litvinova Y, Rebac B. Health systems in action: Bosnia and Herzegovina Health Systems in Action insight series (2022) [Internet]. The Observatory. 2022 [cited 2023 Apr 15]. Available from: https://eurohealthobservatory.who.int/publications/i/health-systems-in-action-bosnia-and-herzegovina-2022
24. Dinmohamed AG, Visser O, Verhoeven RHA, Louwman MWJ, van Nederveen FH, Willems SM, et al. Fewer cancer diagnoses during the COVID-19 epidemic in the Netherlands. Lancet Oncol. 2020;21(6):750-1.
25. Wright A, Salazar A, Mirica M, Volk LA, Schiff GD. The Invisible Epidemic: Neglected Chronic Disease Management During COVID-19. J Gen Intern Med. 2020;35(9):2816-7.
26. Hoerold M, Gottschalk M, Debbeler CM, Heytens H, Ehrentreich S, Braun-Dullaeus RC, et al. Healthcare professionals' perceptions of impacts of the Covid-19-pandemic on outpatient care in rural areas: a qualitative study. BMC Health Serv Res. 2021;21(1):1298.
27. Rijpkema C, Ramerman L, Homburg M, Meijer E, Muris J, olde Hartman T, et al. Care by general practitioners for patients with asthma or COPD during the COVID-19 pandemic. Npj Prim Care Respir Med. 2023;33(1):15.
28. Schers H, van Weel C, van Boven K, Akkermans R, Bischoff E, olde Hartman T. The COVID-19 Pandemic in Nijmegen, the Netherlands: Changes in Presented Health Problems and Demand for Primary Care. Ann Fam Med. 2021;19(1):44-7.
29. Vučak J, Popovic B, Ljubotina A, Vojvodić Ž, Sabljak D, Zavidić T. Changes in consultation mode during different phases of the COVID-19 pandemic in Croatian family medicine: a cross-sectional study. BMJ Open. 2023;13(1):e066325.
30. Tsioufis K, Chrysohoou C, Kariori M, Leontsinis I, Dalakouras I, Papanikolaou A, et al. The mystery of "missing" visits in an emergency cardiology department, in the era of COVID-19.; a time-series analysis in a tertiary Greek General Hospital. Clin Res Cardiol. 2020;109(12):1483-9.
31. van Weert H. After the first wave: What effects did the COVID-19 measures have on regular care and how can general practitioners respond to this? Eur J Gen Pract. 2020;26(1):126-8.
32. Efeoğlu İE, Kılınçarslan Ö. Pandemic experiences of family physicians infected with the COVID-19: a qualitative study. BMJ Open. 2022;12(4):e052955.