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Research Article

Perception of users who sought healthcare in Primary Care during the COVID-19 pandemic in Fortaleza, Brazil

Percepção dos usuários que buscaram atendimento na Atenção Primária à Saúde durante a pandemia de COVID-19 em Fortaleza, Brasil

Percepción de los usuarios que buscaron atención médica en la Atención Primaria durante la pandemia de COVID-19 en Fortaleza, Brasil

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Abstract

Introduction: To stop the COVID-19 pandemic from spreading, health systems worldwide prioritized emergency consultations over primary care. **Objective:** Evaluate users' perceptions of medical care received by public Primary Health Care (PHC) services in Fortaleza, Ceará, Brazil, during the pandemic from April 2020 to July 2021. **Methods:** A cross-sectional study was conducted involving interviews and electronic medical records (EMR) analysis. From August to November 2021, 126 participants were enrolled in three primary healthcare units. Participants were surveyed with a 13-item questionnaire to evaluate their perception of the care they received. An ordinal logistic regression analysis examined the factors influencing users' perceptions of the service they received. **Results:** Of the 126 participants, 107 were females (84.9%) and 19 were males (15.1%), with an average age of 39.7 years. Among the participants, 42.9% waited for care for up to 60 minutes, and 69% believed the pandemic affected this waiting time. Most individuals (78.6%) agreed that there needed to be an increase in the number of doctors to ensure adequate care. Distancing, masks, and face shields hindered appointments, according to 16.7% of those interviewed. The majority (53.2%) rated the service received as "very good." EMR data from 58 participants was collected. The most common ICD-10 code groups in the emergency department were general consultations and non-specific complaints (25.2%), respiratory symptoms and cases of COVID-19 (11.5%), and prenatal care (9.6%). The factors that influenced their perceptions of care included believing that there were enough doctors available to attend appointments, believing that the pandemic interfered with waiting times, the accessibility of health professionals for advice, being a woman, and the number of times they obtained medication. **Conclusions:** Most participants classified the medical care received as very good, despite the pandemic overload and changes in the work of healthcare professionals.

Keywords: COVID-19; Pandemics; Primary Health Care; Patient Satisfaction; Health Impact Assessment.

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Resumo

Introdução: Para conter a disseminação da pandemia de COVID-19, os sistemas de saúde de todo o mundo priorizaram as consultas de emergência em detrimento da atenção primária. **Objetivo:** Avaliar as percepções dos usuários sobre o atendimento médico recebido nos serviços públicos de Atenção Primária à Saúde (APS) em Fortaleza, Ceará, Brasil, durante a pandemia, de abril de 2020 a julho de 2021. **Métodos:** Foi realizado um estudo transversal com entrevista e análise de prontuários eletrônicos (PE). De agosto a novembro de 2021, 126 participantes foram recrutados em três unidades de APS. Os participantes responderam a um questionário de 13 itens para avaliar a percepção sobre o atendimento recebido. A análise de regressão logística ordinal foi realizada para examinar os fatores que influenciaram as percepções dos usuários quanto ao atendimento recebido. **Resultados:** Participaram 107 mulheres (84,9%) e 19 homens (15,1%), com idade média de 39,7 anos. Entre os participantes, 42,9% esperaram até 60 minutos pelos atendimentos e 69% acreditavam que a pandemia interferiu nesse tempo de espera. A maioria das pessoas (78,6%) concordou que era necessário aumentar a quantidade de médicos para garantir um atendimento adequado. O distanciamento, as máscaras e os protetores faciais atrapalharam as consultas, segundo 16,7% dos entrevistados. A maioria (53,2%) classificou o atendimento recebido como "muito bom". Dados dos PE de 58 participantes foram coletados. Os grupos de códigos CID-10 mais comuns na emergência foram: consultas gerais e queixas não específicas (25,2%), sintomas respiratórios e casos de COVID-19 (11,5%) e pré-natal (9,6%). Os fatores que influenciaram a percepção sobre o atendimento foram: acreditar que havia médicos suficientes disponíveis para atender às consultas; acreditar que a pandemia interferiu nos tempos de espera; a acessibilidade dos profissionais de saúde para orientação; ser mulher e o número de vezes que obteve medicação. **Conclusões:** A maioria dos participantes classificou o atendimento médico recebido como muito bom, apesar da sobrecarga pandêmica e das mudanças no trabalho dos profissionais de saúde.

Palavras-chave: COVID-19; Pandemias; Atenção Primária à Saúde; Satisfação do Paciente; Avaliação do Impacto na Saúde.

Resumen

Introducción: Las consultas de urgencia fueron priorizadas sobre la Atención Primaria durante la pandemia de COVID-19 como estrategia para frenar la propagación de la enfermedad. **Objetivo:** Evaluar la percepción de los usuarios sobre la atención médica recibida durante en los servicios públicos de Atención Primaria de Salud (APS) en Fortaleza, Ceará, Brasil, durante la pandemia, de abril de 2020 a julio de 2021. **Métodos:** Se realizó un estudio transversal que incluyó entrevistas y análisis de registros clínicos electrónicos (RME). Entre agosto y noviembre de 2021, se reclutaron 126 participantes en tres unidades de APS. Los participantes fueron encuestados mediante un cuestionario de 13 ítems para evaluar su percepción sobre la atención que recibieron. Se realizó un análisis de regresión logística ordinal para examinar los factores que influyeron en la percepción de los usuarios sobre el servicio recibido. **Resultados:** De los 126 participantes, 107 eran mujeres (84,9%) y 19 eran hombres (15,1%), con una edad promedio de 39,7 años. Entre ellos, el 42,9% esperó hasta 60 minutos para ser atendido, y el 69% consideró que la pandemia interfirió en este tiempo de espera. La mayoría de los individuos (78,6%) coincidieron en que era necesario aumentar el número de médicos para garantizar una atención adecuada. El distanciamiento, el uso de mascarillas y protectores faciales dificultaron las citas según el 16,7% de los entrevistados. La mayoría (53,2%) calificó el servicio recibido como "muy bueno". Se recopilaron datos de RME de 58 participantes. Los grupos de códigos CIE-10 más comunes en el departamento de emergencias fueron consultas generales y quejas inespecíficas (25,2%), síntomas respiratorios y casos de COVID-19 (11,5%) y atención prenatal (9,6%). Los factores que influyeron en su percepción de la atención incluyeran la creencia de que había suficientes médicos disponibles para las citas, la percepción de que la pandemia interfirió con los tiempos de espera, la accesibilidad de los profesionales de la salud para brindar orientación, ser mujer y la cantidad de veces que obtuvieron medicación. **Conclusiones:** La mayoría de los participantes calificó la atención médica recibida como muy buena, a pesar de la sobrecarga y los cambios en el trabajo de los profesionales de la salud debido a la pandemia.

Palabras-clave: COVID-19; Pandemias; Atención Primaria de Salud; Satisfacción del Paciente; Evaluación del Impacto en la Salud.

INTRODUCTION

COVID-19, an infectious respiratory disease caused by the SARS-CoV-2 virus, was first reported in Wuhan, Hubei Province, China, in December 2019. It was declared a pandemic by the World Health Organization (WHO) in March 2020. In response, several countries implemented measures to control the incidence and mortality associated with the emerging health crisis, including isolating suspected and confirmed cases, enforcing social distancing, and even instituting population-wide lockdowns.[1,2]

The pandemic has challenged the capacity of health systems to meet the demands of local populations. As a result, healthcare systems worldwide have been compelled to reorganize and limit outpatient services, primary and preventive care, specialized care, and elective procedures to prioritize COVID-19 management.[3-7]

Victor Tseng, a physician at Emory University, introduced the concept of four excess demand curves resulting from the pandemic:

- COVID-19 cases;
- acute illness cases that did not seek medical attention;
- chronic diseases with interrupted care;
- mental disorders cases.

However, acute and chronic conditions, particularly in primary health care (PHC), coincide, leading to a demand overload.[8] Hence, it is imperative to strengthen PHC to ensure the continuity of health promotion, prevention, and assistance.[9-11] In Brazil, the COVID-19 pandemic underscored the importance of the Unified Health System (SUS), highlighting the need for a more robust PHC to enhance its capacity to address the rising number of of COVID-19 cases.[9,12]

On March 15th, 2020, the state of Ceará confirmed the first cases of COVID-19 in Brazil. In the first 45 days following the outbreak, data from various government sources showed 71.3% occupancy in general wards and 80.5% in intensive care units (ICUs). The disease had already been notified in 85.9% of Ceará's municipalities, resulting in 1,019 deaths, which revealed the rapid collapse of the local health system.[13]

The peak of confirmed cases during the first epidemic waves in Fortaleza, the capital of Ceará, occurred between April and May 2020. The second wave started in October 2020 and peaked in March 2021. The city was under lockdown during both of these critical periods.[14] Furthermore, authorities built field hospitals to handle COVID-19 cases and increased the capacity of existing wards and ICUs by adding more beds.[15] Regarding PHC, the municipal contingency plan allocated 70% of consultations to spontaneous demand (including suspected COVID-19 cases) and only 30% to scheduled appointments for priority groups, such as pregnant women, aged individuals with high cardiovascular risk, patients with tuberculosis and leprosy, and other essential consultations. The plan also involved the cancellation of non-urgent appointments and the extension of prescription validity for continuous-use medications for up to one year, reducing the need for patients to return to healthcare units for prescription renewal.[16,17]

The COVID-19 pandemic, isolation measures, and changes in the organization of the local health system, including the discontinuation of consultations and preventive care at the primary level, have impacted the health of PHC patients in Fortaleza. However, the number of studies in northeastern Brazil evaluating public PHC services during the pandemic remain limited. An extensive search of scholarly articles published from 2020 to 2021 across various databases (PubMed, SciELO, and Google Scholar) identified only studies addressing the economic effects of the pandemic, its impact on work practices or mental health of healthcare professionals, and investigations into public behaviors and the social impact of the crisis.[18-21]

While user satisfaction is essential for evaluating health services, it is not a standalone measure of care quality. Satisfaction may be linked to quality since the performance of health services can influence patients' health status and influence treatment adherence, horizontality of care, and adequacy in the utilization of care resources.[22]

This study aimed to evaluate the perception of adult users regarding the care received in medical consultations at public PHC services in Fortaleza during the COVID-19 pandemic, between April 2020 and July 2021.

METHODS

This study is an analytical cross-sectional research that includes a survey of users and an analysis of electronic medical records (EMR). The methodology follows the STROBE guidelines.[23]

The study was conducted in three PHC units (*Unidade de Atenção Primária à Saúde* – UAPS) within Fortaleza's VI health administrative region from August to November 2021. The original study design aimed to obtain a representative sample of Fortaleza by including participants from multiple UAPS across the city's six health regions. The sample size was calculated based on the total population of registered users (N=1,724,247), using the formula for finite populations and assuming a hypothetical frequency of the outcome (proportion of users rating the service as "very good," p=50%±5) with a 95% confidence level. This calculation yielded a target sample size of 385 participants, determined using the OpenEpi online tool.

However, the surge in COVID-19 cases due to the Omicron variant between late 2021 and early 2022 created logistical and safety constraints for data collection across multiple locations. Consequently, the methodology was adjusted to focus on three UAPS in the VI health administrative region, selected for their accessibility to the research team and convenience, as they were sites of ongoing academic activities. This adjustment ensured the feasibility of the study while prioritizing the safety of participants and researchers. The selected units were UAPS Miriam Mota (14,135 registered users), UAPS Terezinha Parente (30,713 registered users), and UAPS Graziela Teixeira (8,042 registered users).

The three selected units operate under the Brazilian Family Health Strategy with a standardized municipal infrastructure and include essential facilities such as consultation rooms, a pharmacy, and dental offices. All units are equipped with computers with internet access and EMR and provide medications from the Brazilian National List of Essential Medicines. They operated from 7:00 AM to 7:00 PM, Monday to Friday, with in-person scheduling for consultations and walk-in emergency care available at all times. Emergency cases are initially assessed by a nurse and referred for medical consultation if needed. Access is often facilitated by community health agents; however, during the pandemic, no digital or remote tools (*e.g.*, teleconsultations, phone scheduling, or messaging apps) were implemented to optimize care.

Inclusion criteria consisted of adult individuals, both male and female, registered at a UAPS, who had medical consultations, received medications, or underwent exams between April 2020 and July 2021, and who agreed to participate in the study. The following were excluded:

- individuals who were unable to participate in the study due to a physical or cognitive condition;
- individuals who did not identify a UAPS in Fortaleza as their reference PHC service;
- users who did not reside within the UAPS coverage area.

PHC users at the UAPS were invited to participate in the study. A comprehensive explanation of the research methodology and objectives was provided to individuals meeting the predefined criteria for sample selection. Their willingness to participate was then assessed, and any uncertainties were addressed while affirming their rights and elucidating potential risks. The authors created a 13-item questionnaire for the interviews to assess users' perceptions of the care and services provided in the UAPS. Questions addressed: waiting time for consultations, availability of medical staff, responsiveness of health professionals to user complaints, the impact of biosecurity measures on the quality of medical care, and the cancellation of consultations or services due to the pandemic. The questionnaire included objective yes–or–no questions, a multiple–choice question regarding consultation wait time, and a Likert-

type scale question from 1 to 5, where one represented “very bad” and five represented “very good,” according to users’ perceptions of medical care during the period from April 2020 to July 2021.

Additional health information was collected from participants using the UAPS EMR system. This included the type of care received, International Classification of Diseases, Tenth Revision (ICD-10) codes for consultations, medication release dates, and exam dates during the research period. To ensure confidentiality, a numerical identifier was used instead of the individual’s full name. In Fortaleza’s EMR system, each user consultation is classified under the Ambulatory Production Bulletin (*boletim de produção ambulatorial* – BPA) as an individual procedure, type of care service, or consultation. Some consultations are associated to specific population groups as part of primary healthcare programmatic or strategic initiatives. These include consultations for hypertensive and diabetic patients, prenatal care, child care, women’s health, mental health, leprosy, tuberculosis, non-schedule consultations for urgent symptoms, and other services. For data analysis, the BPA service classification was referred to as a “programmatic group.”

The interviewers collected survey data via a virtual questionnaire using the Google Forms platform in smartphones. Data collection from EMR was conducted locally through database access, with permission from the Municipal Health Department.

Data were tabulated using Microsoft Excel 2016 (Redmond, USA) and imported into Stata 17 (Stata Corporation, College Station, USA) for statistical analysis. Descriptive analyses were arranged in tabular form, accounting for nominal and ordinal qualitative variables (questionnaire responses and users’ epidemiological characteristics) and discrete quantitative variables (number of consultations, medication release times, and exams performed).

The dependent variable outcome (a polytomous ordinal qualitative variable) was the response on the Likert-type scale regarding the users’ evaluation of the medical care received. It was hypothesized that the epidemiological characteristics of users and their utilization of health services influenced their satisfaction with the medical care they received. In essence, differences are expected between individuals who rated the service as “very good” and those who provided different ratings. After an initial assessment, the Kruskal–Wallis non-parametric statistical method was applied to verify associations between variables. To explain the influence of the various factors on the outcome variable, an ordinal logistic regression was performed using a proportional odds model.[24] Akaike’s information criterion (AIC) was employed to select the best-fitting model for the data.[25] All test results were considered statistically significant at $p<0.05$.

The study was approved by the Ethics Committee of Universidade de Fortaleza under opinion No. 4.855.559, issued on July 19, 2021. Each participant filled out and signed an informed consent form (ICF). All procedures involving human subjects complied with the ethical standards of the Declaration of Helsinki (1964/2013). The authors opted not to share the data obtained in the study or the codes used in the analyses.

RESULTS

The study initially included 126 participants interviewed between August and November 2021. Participants’ full names and Brazilian ID numbers from the ICF were used to retrieve their epidemiological characteristics and details of PHC service utilization from the EMR. Of these, 83 participants were matched in the EMR database using the identification details provided. Among the 83 matched records, 58 participants were retained for the final analysis, as their information (date of birth, gender, and registered health unit) fully aligned between the interview data and the EMR, with no discrepancies or missing data.

Of the 126 users interviewed, 107 (84.9%) were female. The mean age was 39.7 years (standard deviation – SD 14.5; 18 to 72). As for the questionnaire responses, 42.9% of participants reported waiting 30 to 60 minutes for consultations, and 69% stated that the pandemic interfered with that time. Additionally, 78.6% believed there were not enough doctors to provide proper care. Furthermore, 16.7% of respondents indicated that social distancing measures, including masks and face shields, interfered with consultations (Table 1). Regarding the evaluation of medical care received, 67 participants (53.2%) rated it as "very good," 23.8% as "good," 15.1% as "regular," and 4% as "bad." No participant rated the services as "very bad."

Table 1. Distribution of responses to the perception questionnaire regarding the care received at UAPS answered by the 126 participants, between April 2020 and July 2021, Fortaleza - Brazil, 2021.

Question	**N (total of participants)=126**		**N (sample of participants enrolled into the final model)=58**	
	Yes N (%)	No N (%)	Yes N (%)	No N (%)
Do you believe the pandemic interfered with the waiting time to receive care at this health unit?	87 (69.0)	39 (31.9)	42 (72.4)	16 (27.6)
Do you think there are enough doctors to provide proper care in the current pandemic moment?	27 (21.4)	99 (78.6)	14 (24.1)	44 (75.9)
Was any consultation or service of yours (such as collection of exams or vaccinations) ever canceled due to the COVID-19 pandemic?	47 (37.3)	79 (62.7)	21 (36.2)	37 (63.8)
Do you think the biosecurity measures followed by health professionals (such as distancing, use of a mask or use of a face shield) interfered with your consultation(s)?	21 (16.7)	105 (83.3)	6 (10.3)	52 (89.7)
Were the health professionals at this health unit available to provide guidance whenever requested during the pandemic period?	108 (85.7)	18 (14.3)	50 (86.2)	8 (13.8)
During your consultation, do you think the doctor performed all the necessary procedures to ensure the best possible care?	101 (80.2)	25 (19.8)	44 (75.9)	14 (24.1)

Table 2 lists the fifteen most common ICD-10 codes and groups of codes used in the consultations. The most frequently used individual ICD–10 code in the EMR was I10 (Essential, primary hypertension), recorded in 20 cases (7.4%). The second most frequent code was Z76.0 (Issue of repeat prescription), with 16 (5.9%) records. Notably, the total number of codes used (270) exceeded the number of participants, as individuals may have attended multiple consultations during the research period or received more than one ICD-10 code per visit. Most participants — 36 (34.4%) — were not assigned to any programmatic groups, while 14 (16.8%) received prenatal care, and 24 (28.8%) were classified as hypertensive patients.

When categorized by ICD–10 chapters, the Z00–Z99 group (factors influencing health status and contact with health services), which includes various types of consultations, had the highest number of records in the EMR (68; 25.2%) (Table 2). If the number of records in the J00–J99 group (diseases of the respiratory system) is combined with queries codes as B34.2 (coronavirus infection, unspecified site) and U07.1 (COVID-19, identified virus). These cases account for 11.5% (n=31) of consultations, potentially indicating suspected or confirmed cases of COVID-19. When all codes related to prenatal care (Z34.0, Z34.8, Z34.9, Z35.0, Z36.0, Z36.8, Z32.1) are grouped, they total 9.6% (n=26).

Table 2. ICD-10 codes, individually and grouped, most frequently used in consultations between April 2020 and July 2021, Fortaleza, Brazil, 2021.

ICD – 10 codes	N (%)
	Total=270
I10 - Essential (primary) hypertension	20 (7.4)
Z76.0 - Issue of repeat prescription	16 (5.9)
Z10.0 - Occupational health examination	14 (5.2)
F41.1 - Generalized anxiety disorder	13 (4.8)
N39.0 - Urinary tract infection, site not specified	11 (4.1)
Z348 - Supervision of other normal pregnancy	10 (3.7)
J00 - Acute nasopharyngitis [common cold]	8 (3.0)
Z340 - Supervision of normal first pregnancy	6 (2.2)
Z349 - Supervision of normal pregnancy, unspecified	6 (2.2)
G43.0 - Migraine without aura [common migraine]	5 (1.9)
J06.9 - Acute upper respiratory infection, unspecified	5 (1.9)
N94.1 - Dyspareunia	4 (1.5)
U07.1 - COVID-19, virus identified	4 (1.5)
B34.2 - Coronavirus infection, unspecified site	3 (1.1)
E11.9 - Type 2 diabetes mellitus without complications	3 (1.1)
Groups of ICD – 10 codes	**N (%)**
[Z00 - Z99] Factors influencing health status and contact with health services	68 (25.2)
[N00 -N99] Diseases of the genitourinary system	29 (10.7)
[R00 -R99] Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	25 (9.3)
[I00 - I99] Diseases of the circulatory system	24 (8.9)
[J00 - J99] Diseases of the respiratory system	24 (8.9)
[F00 - F99] Mental and behavioral disorders	21 (7.8)
[A00 - B99] Certain infectious and parasitic diseases	19 (7.0)
[M00 - M99] Diseases of the skin and subcutaneous tissue	19 (7.0)
[K00 - K93] Diseases of the digestive system	10 (3.7)
[E00 - E90] Endocrine, nutritional and metabolic diseases	8 (3.0)
[G00 - G99] Diseases of the nervous system	8 (3.0)
[U4 -U99] Codes for special purposes	4 (1.5)
[H00 - H95] Diseases of the eye and adnexa/Diseases of the ear and mastoid process	3 (1.1)
[O00 - O99] Pregnancy, childbirth, and the puerperium	3 (1.1)
[C00 - D48] Neoplasms	2 (0.7)

No dental consultations were recorded during the research period, and only three were related to gynecological conditions (two Z12.4–Special screening examination for neoplasm of the cervix; and one Z30.4–Surveillance of contraceptive drugs). The average number of times each user received medication during the period was 9.33 (SD 8.24; 0 to 38).

Of the 58 participants included in the final regression analysis, 49 (84.5%) were women, and 9 (15.5%) were men. The average age was 40.8 years old (SD 15; 19 to 73). Most participants, 27 (46.6%), evaluated the medical care they received as “very good,” while 14 (19%) evaluated it as “good.” In terms of consultation waiting time, 13 (22.4%) waited up to 30 minutes, 24 (41.4%) waited between 30 and 60

minutes, and 21 (36.2%) waited more than an hour to be seen. Most participants, 54 (93%), were part of the same UAPS. Therefore, this factor was not considered a variable selected for analysis by the authors. Table 1 shows the distribution of other questionnaire responses from this subsample of 58 participants.

The mean number of consultations in this group was 4.47 (SD 3.85; 0 to 17; 95%CI 3.45–5.47). The average number of exams performed per participant was 1.07 (SD 1.39; 0 to 5; 95%CI 1.70–1.43), and the average number of times each user received medication was 9.79 (SD 8.44; 0 to 38; 95%CI 7.57–12.01). The majority (26; 44.8%) did not belong to any programmatic group.

The Kruskal-Wallis test was performed to analyze the relationship between the user's assessment of the medical care received during the research period, ranging from 1 to 5, with one indicating "very bad" and five indicating "very good," and other questionnaire responses, as well as factors related to the use of health services found in the EMR. Biosecurity measures taken by health professionals (p=0.018), the availability of health professionals to provide guidance (p=0.003), and the doctor performing all necessary procedures during consultations (p=0.007) were statistically significant predictors of care evaluation. Moreover, belonging to a programmatic group was also linked to care evaluation (p=0.0224).

The influence of pregnancy (n=7; 12.1% of 58) on the answers regarding the evaluation of the care received was analyzed by grouping the responses into two categories: from 1 to 3 as "bad," and 4 to 5 as "good." Among the pregnant participants, only one rated the service as "good." Pregnancy was significantly associated with care evaluation (p<0.001), increasing the likelihood of rating care as "good" by 0.0513 (95%CI *odds ratio*=0.00561–0.469). The same analysis was performed for those with hypertension and/or diabetes (n=20; 34.5% of 58), of whom seventeen rated the service as "good." However, being hypertensive and/or diabetic was not significantly associated with the evaluation of care (p=0.056).

Table 3 depicts the final ordinal logistic regression model of proportional odds involving the influence of perception questionnaire responses and participant epidemiological characteristics on the outcome of the user's evaluation of the medical care received (p=0.0002). Among the models tested, this one had the lowest AIC (147.4656), indicating the best fit.

Table 3. Odds ratios and 95% confidence intervals for the ordinal model of perceived quality of primary health care based on user characteristics and questionnaire responses, Fortaleza, Brazil, 2021.

Variable	OR (95%CI)
Do you believe there are enough doctors to provide proper care during the current pandemic moment?	3.312 (0.920–14.138)
Do you believe the pandemic has interfered with the waiting time to receive care at this health unit?	0.400 (0.112–1.294)
Were the health professionals at this health unit available to provide guidance whenever requested during the pandemic period?	17.089 (3.574–93.120)
Number of times medication was received	1.065 (0.997–1.150)
Being female	0.255 (0.064–0.986)

The "very bad" response to the user's perception of care serves as the reference category. The odds ratios can be interpreted as follows:

- Respondents who believe there are enough doctors to ensure proper care are 3.312 times more likely to choose an alternative other than "very bad" compared to those who do not share this belief;
- Respondents who believe the pandemic has interfered with the waiting time for care are 0.40 times more likely to choose an alternative other than "very bad" compared to those who do not share this belief;

- Respondents who believe professionals were available for guidance during the pandemic are 17.089 times more likely to choose an alternative other than “very bad” compared to those who do not share this belief;
- Regarding the frequency of medication dispensation, each unit increase in the number of medications released is associated with an approximate 1.06% increase in the likelihood of selecting the “very good” category.

Additionally, female respondents are 0.255 times more likely than male respondents to choose an alternative other than “very bad.”

DISCUSSION

This study analyzed how adult users perceived medical care in public PHC services during the COVID-19 pandemic in Fortaleza, highlighting factors such as medication availability, professional guidance, and waiting times, which were associated with positive perceptions. The findings indicate that most of the participants considered the care received as “very good” and that the factors associated with this perception were: believing that there were enough doctors to provide care; believing that the pandemic interfered with service time; availability of health professionals to provide guidance; being female; and the frequency in which each user received medication.

The assessment of health services quality encompasses several aspects, including user perception and satisfaction, such as those performed in this study. A brief review of 12 studies using different methods conducted in European countries on the quality of health services during the COVID-19 pandemic — four from the United Kingdom (UK) and one each from Catalonia, Italy, Sweden, Poland, the Netherlands, France, Germany, and Belgium — found that patients in the UK perceived the quality of services as high during the pandemic, whereas quality declined in the other cited locations.[26]

In this study, most participants believed that the pandemic interfered with consultation waiting times and that more medical professionals were needed to guarantee good care. These factors explained users’ perceptions of care quality in the logistic model. Additionally, most participants stated that they had not experienced appointment cancellations for COVID-19–related reasons. In contrast, an American study conducted via social media in May 2020 found that 69.75% of the 170 participants experienced changes in medical appointment scheduling, including postponements, cancellations, or a transition to telemedicine due to the COVID-19 pandemic. Furthermore, most of those whose appointments were postponed or canceled indicated an overall negative impact on their physical and emotional well–being.[27] In this study, 47 (37.3%) participants reported having a consultation or other services, such as exam collection or vaccinations, canceled due to the pandemic.

Previous research suggests that patient satisfaction tends to increase when their requests for diagnostic tests, referrals, or prescriptions for preferred medications — often analgesics and antibiotics — are fulfilled during medical consultations. These findings help explain the observed effect of medication dispensation on enhancing patients’ perception of the care they receive.[28-30]

Quality of care and patient satisfaction, which are strongly associated with the emotional aspects of the doctor–patient relationship, can be affected by several factors related to the COVID-19 pandemic. Biosecurity measures, such as mask use and social distancing, impair nonverbal communication, including facial expressions, gestures, and physical touch. For example, a randomized controlled trial in Hong Kong

found that physicians wearing masks significantly negatively influenced patients' perceptions of physician empathy.[31] In the present study, most participants considered that the biosecurity precautions followed by healthcare workers did not affect the quality of care.

Despite the Brazilian Ministry of Health's guidance on maintaining care for women during pregnancy and the puerperium, as well as investigating or treating risk conditions such as neoplasms during the pandemic, the reorganization of healthcare services — including the suspension of preventive services — led to impacts on women's health.[32] Only three of the 270 consultations in this study had an ICD-10 code related to gynecological concerns. However, gynecological issues may have been addressed in other appointments but not documented using ICD-10 codes.

The results do not allow for detailed conclusions regarding leprosy and tuberculosis consultations, which should have continued throughout the pandemic. Despite the low number of these consultations in the analyzed sample, data on the prevalence of these conditions in the UAPS population were not examined. Therefore, it cannot be determined with certainty whether there was a decline in attendance. In the North Region of Brazil, notifications and hospitalizations for several infectious diseases with mandatory notification, such as leprosy, decreased by 50–80% in 2020 compared to the period from 2015 to 2019.[33] As for tuberculosis, nationwide data showed an increase in consultations but a reduction in confirmed tuberculosis cases notified in 2020 compared to previous years.[34]

In this study, being female and belonging to a programmatic group were associated with a more positive perception of the care received. However, the high proportion of female participants may suggest a potential bias, as it could explain the observed impact of gender on users' perceptions. Data from the Brazilian Institute of Geography and Statistics' 2019 National Health Survey supports the finding that belonging to a programmatic group influences individuals' perceptions of primary healthcare services. The survey found that adults with comorbidities and older individuals — who are frequent users of these services — tend to rate them more positively.[35]

The Brazilian PHC, especially the Family Health Strategy, is characterized by territorial surveillance, access, comprehensive care, and monitoring of families and communities.[36] Bearing this in mind, the presented results offer practical implications for decision–making by health managers in future crises, such as upcoming epidemics, to strengthen PHC and maintain its full range of services.[37] Additionally, the findings indicate that adequate human resources in the form of health professionals are essential for ensuring good service quality from the users' perspective and expanding access beyond the provision of medications.

Despite the overload in the UAPS and the changes in healthcare professionals' work to manage the COVID-19 pandemic, most interviewed users evaluated the medical care received as very good. Care was prioritized for acute complaints, while elective consultations were maintained only for certain populations, such as pregnant women and individuals with chronic conditions. Additionally, the dispensation of medications for continuous use was ensured.

This study presents several limitations that must be considered when interpreting its findings. Selection bias affects internal validity, as the sample included only users present at health units and willing to participate in interviews, potentially excluding individuals facing greater access barriers. This may have led to an underestimation of dissatisfaction rates among more vulnerable populations. Furthermore, identification data required for EMR linkage were self-reported, introducing potential systematic errors. To address this, the final multivariate analysis included only participants with complete and consistent identification data, ensuring that observed relationships were genuine and not influenced by random

or systematic errors. However, this approach assumes that missing data are completely random, an assumption that was not formally tested in this study.

Another significant limitation is the small sample size, which affects the precision of point estimates and confidence intervals, necessitating cautious interpretation. This limitation also undermines the robustness of statistical analyses, particularly those estimating prevalence and associations using logistic regression. Additionally, while the use of AIC for variable selection is methodologically sound, it may exacerbate bias and contribute to estimate instability in small samples. As a result, the observed associations should be interpreted as exploratory.

The study's representativeness was also constrained by the selection of three PHC units, chosen based on logistical feasibility during the pandemic. While practical, this choice limits the generalizability of the findings to other populations, even in cities of similar size. Additionally, the cross-sectional design precludes causal inferences among the analyzed factors.

Despite its limitations, the study provides relevant insights for Brazilian PHC management. Although reduced access to services and interruptions in longitudinal care likely impacted health outcomes during the COVID-19 pandemic, these issues did not significantly affect users' perceptions. Users reported satisfaction with the availability of healthcare providers, short waiting times, and efficient medication dispensation, suggesting these aspects are key targets for improving public satisfaction and perception of PHC services.

The findings offer practical insights for public health management in Fortaleza, particularly for strengthening PHC services during future health crises. In the studied UAPS, maintaining medication dispensation, ensuring adequate human resources, and improving waiting times were critical for user satisfaction. These results highlight the importance of context-specific strategies to preserve the quality and accessibility of primary care services during future epidemics, including endemic outbreaks such as arboviruses, which are prevalent in Brazil. For PHC units in Fortaleza, strategies such as implementing telemedicine or telephone consultations could enhance service continuity, particularly during crises. These approaches could help address the specific challenges observed in the studied units, such as maintaining medication dispensation and access to care, ensuring continuity of care, particularly for vulnerable populations like individuals with chronic illnesses, pregnant women, children, and aged individuals. Digital methods can also support the regular activities of PHC, such as health promotion, disease prevention, and health education. Additionally, it is crucial to ensure care coordination by integrating PHC with other health systems services. The study serves as a starting point for considering management strategies, including regulating medications and supplies, reallocating resources and professionals, and restructuring work practices, such as implementing new schedules, roles, and operating hours.

CONFLICT OF INTERESTS

The authors declare no conflict of interests.

AUTHORS' CONTRIBUTIONS

LBC: Conceptualization, Formal Analysis, Data Curation, Writing – Review & Editing. LPGC: Conceptualization, Formal Analysis, Data Curation, Writing – Review & Editing. PDA: Data Curation, Writing – Original Draft. JCVC: Data Curation, Writing – Original Draft. TLBF: Data Curation, Writing – Original

Draft. IFV: Data Curation, Writing – Original Draft. LPA: Data Curation, Writing – Original Draft. VNM: Data Curation, Writing – Original Draft. LTPM: Data Curation, Writing – Original Draft. LAR: Data Curation, Writing – Original Draft. JVSB: Data Curation, Writing – Original Draft. FMF: Data Curation, Writing – Original Draft. LPP: Data Curation, Writing – Original Draft. JVCF: Data Curation, Writing – Original Draft. SASO: Data Curation, Writing – Original Draft. GMFB: Data Curation, Writing – Original Draft.

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