



Comparison of Outpatient Services Utilization Before and After the COVID-19 Outbreak at Base Hospital Homagama

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Abstract

Background: The Outpatient Department is where patients receive healthcare services for minor conditions that can be managed without hospital admission. During the COVID-19 pandemic, healthcare utilization decreased drastically, with variations across different areas of patient care.

Objective: Our objective was to identify the differences in outpatient service utilization before and after the COVID-19 outbreak at Base Hospital Homagama.

Methods: A cross-sectional descriptive study was conducted to compare OPD service utilization before and after the COVID-19 outbreak at Base Hospital Homagama. Data were collected using the hospital's health information system. All patient visits were entered into the computerized hospital information system in 2019, and 2022 were included. Patients who received OPD services in 2019 were considered "before the COVID-19 period" and those who received services in 2022 were considered "after the COVID-19 period". Data collection utilized the hospital's information system (HIS) report module to obtain aggregated data on patient encounters, reasons for encounters, age categories, prescriptions, procedures, and investigations. Additional analyses, including reasons for encounters by age and gender and their associated procedures and investigations, were conducted using MySQL and analyzed using SPSS. Ethical approval was obtained from the Ethical Review Committee of the Faculty of Medicine, General Sir John Kotelawala Defense University prior to the commencement of the research.

Results: The total number of OPD visits was higher in 2019 than that in 2022, which was also reflected in the daily average attendance of patients. The percentage of newly registered patients compared to the total number of OPD visits was similar in both 2019 and 2022. However, the number of prescriptions issued, relative to the total number of OPD visits, was higher in 2019. There was a significant variation in weekly OPD visits in 2019 compared to 2022 ($P < 0.05$). The number of OPD visits decreased across all age groups by 2022 compared to 2019. The percentage of OPD visits for the 14-49 year age group was similar for both 2019 and 2022. However, there was an increase in the number of OPD visits for the age group over 49 years in 2022 compared with 2019. The average waiting time for doctor consultations and dispensary services in 2022 was shorter than that in 2019. The percentage of patients with Upper Respiratory Tract Infection symptoms decreased by 2022 (17.5%) compared to that in 2019 (18.7%). There was a reduction in the number of patients with musculoskeletal complaints (joint pain and back pain), dermatological problems, and wound dressing in 2022

compared to 2019. However, there was an increase in the number of patients with wheezing in 2022 (1.8%) compared with 2019 (0.7%). The percentage of patients undergoing OPD procedures has increased from 20% in 2019 to 27% in 2022. DOTS treatment was completely discontinued in 2022.

Conclusion

In 2022, OPD visits decreased across all age groups compared with 2019, with notable increases in visits for patients over 49 years, shorter waiting times, and a higher percentage of OPD procedures.

Keywords: COVID-19; OPD; Outpatient; Service Utilization.

Background

The government health sector is the leading healthcare provider in Sri Lanka with both preventive and curative sectors. At the end of 2019, there were 643 curative care hospitals in government health services with inward facilities [1]. Outpatient Department (OPD) care is provided by all hospitals & Primary Medical Care Units (PMCU). Patients who need higher & specialized care are referred to the nearest larger hospital.

The Outpatient Department provides health care services for minor disease conditions that could be managed without admitting patients to the hospital. OPD is the first contact point in every hospital. Over 58 million outpatient visits occurred in 2019 in the public sector [1]. It was 321,627 patients in Base Hospital Homagama in 2019.

During the COVID-19 pandemic, healthcare utilization decreased drastically with variations in different patient care areas. There was a more significant reduction in healthcare utilization among patients with less severe illnesses [2]. Significant changes in healthcare utilization occurred due to measures such as stay-at-home orders & lockdowns. Some services had considerable reductions, while some had increments, such as telemedicine. Some patients have missed lifesaving interventions for cancer & essential care, such as vaccination and timely clinic follow-ups. This affected more to lower-income countries. According to the WHO estimations, due to the reduction in maternal & child health interventions, there may have been more than a million additional child deaths [3].

During this pandemic era, Base Hospital Homagama was converted into a treatment centre for patients suspected of having COVID-19 on the 23rd of March 2020. Later, on the 16th of November 2020, it was further designated as a multidisciplinary COVID-19 treatment centre under the Quarantine and Prevention

Ordinance. Complete routine patient care was resumed back on the 3rd of December 2021, concluding approximately 2 years of dedicated COVID-19 patient care with mass vaccination programs.

Even after the critical pandemic era, a considerable variation in the public seeking of healthcare facilities was observed. The outcomes of this study can guide improvements in healthcare service utilization by identifying changes needed during a pandemic, such as implementing telehealth, supporting remote work, promoting food delivery services, and enhancing personal health hygiene. This research is pivotal in optimizing resource allocation and reducing unnecessary expenditures within the health system during and after the pandemic.

Objective

The aim of this study was to identify the differences in outpatient service utilization before and after the COVID-19 outbreak at Base Hospital Homagama

Methods

A cross-sectional descriptive study was conducted to compare OPD service utilization before and after the COVID-19 outbreak at Base Hospital Homagama, Sri Lanka. Data were collected using the hospital's health information system. All the patient visits recorded in the computerized Hospital Information System (HIS) in 2019 and 2022 were included in this study. Total patients who received OPD services in 2019 were considered representing "before the COVID-19 period," and those who received services in 2022 represented "after the COVID-19 period" for this study.

Ethical approval for the study was obtained from the Ethical Review Committee of the Faculty of Medicine, General Sir John Kotelawala Defense University and written permission was granted by the hospital administration to access the Hospital Information

System (HIS) for data extraction. Only the investigators had access to the secured data, which was stored on password-protected personal computers. The data will be retained for three years from the start of the research and will be destroyed thereafter.

Data collection was done using the hospital information system (HIS). The HIS is composed of a reports module, which can provide the number of patient encounters during a given period, the number of patient encounters for each reason for encounter (RFE) during a given period, number of encounters from each predefined age category during a given period, number of prescriptions dispensed each day, number of procedures done each day and number of investigations ordered each day. Above mentioned data fields were collected using the reports module on a monthly and annual basis.

To do a deeper analysis of the patient encounters, in addition to the above-mentioned data, RFE in each age group, RFE in each gender, number of investigations ordered for each reason for encounter, and number of procedures performed for each reason for the encounter was extracted from the database using MySQL database extraction methods. Data analysis was done using the SPSS statistical package.

All the above data sets were extracted in an aggregated format, and none of the personally identifiable data was accessed or used during the research. No individual person's health record was accessed by any member of the research team for this research.

Results

When examined by day of the week, significant decreases in visit numbers were evident on all weekdays ($p < 0.05$). For example, Monday visits fell from 53,359 in 2019 to 29,590 in 2022. The time of day for OPD encounters showed no major shifts, with more than 80% of visits occurring during morning hours (8 AM–12 PM) in both years. The age distribution of patients attending OPD in 2019 and 2022 is presented in Table 1. There was a reduction in the number of OPD visits across all age groups in 2022 compared to 2019.

Efficiency in OPD operations improved, as evidenced by reduced waiting times. Average waiting times for doctor consultations dropped from 23.29 minutes in 2019 to 20.88 minutes in 2022, and dispensary waiting times declined from 13.37 minutes to 9.10 minutes.

The reasons for OPD encounters also shifted post-pandemic, as evident in Table 2.

Table 1: Age Distribution of OPD Encounters (2019 vs. 2022)

Age category	Before COVID (2019)	% of the total OPD visits	After COVID (2022)	% of the total OPD visits
< 1 year	3014	0.99	1019	0.62
1 to 4 years	13971	4.61	4815	2.95
5 to 9 years	23478	7.75	10959	6.71
10 to 14 years	18775	6.19	8698	5.33
15 to 49 years	120954	39.90	65319	39.99
50 to 65 years	71558	23.61	41193	25.22
> 65 years	51365	16.95	31331	19.18
Total	303115	100.00	163334	100.00

Table 2: The Reasons for OPD Encounters (2019 vs. 2022)

Reason for Encounter	Number of cases before COVID19 (2019)	As percentage of total encounters %	Number of cases after COVID19(2022)	As percentage of total encounters %
Cough	46106	15.2	20386	12.4
Wound	30153	9.9	9990	6.1
Fever	9224	3.0	3557	2.1
Cold	7007	2.3	7216	4.4
Rash localized	10088	3.3	4884	2.9
Headache	3037	1.0	1178	0.7
Sore throat	3650	1.2	1168	0.7
Wheezing	2268	0.7	2963	1.8
Back symptom/complaint	3903	1.2	1244	0.7
Joint Symptom/complaint NOS	5688	1.8	2512	1.5

While the total cases of common symptoms like cough (15.2% to 12.4%), fever (3% to 2.1%), wounds (9.9% to 6.1%), and dermatological issues declined, there was an increase in cases of wheezing post-pandemic (0.7% to 1.8%). Table 3 lists procedures performed at the OPD. A higher percentage of patients underwent procedures in 2022 (27%) vs. (20%) in 2019. Wound dressings remained the most common procedure, rising from 12.4% of visits in 2019 to 17.1% in 2022. Other procedures, like IV/IM injections, also increased, whereas some, such as DOT treatment, were entirely discontinued, reflecting shifts in service focus and healthcare priorities.

Table 4 summarizes key indicators of efficiency, effectiveness, and quality of care. It highlights reduced patient load per doctor, improving the doctor-to-patient ratio. In 2022, the average number of patients per doctor per day dropped from 68 in 2019 to 39, and per hour, it declined from 8 to 5. However, a reduction is seen in the average number of doctors available per day (13 in 2019 to 10 in 2022)

This Table compares the efficiency, effectiveness, and quality of care in the outpatient department (OPD) before and after the COVID-19 pandemic, focusing on patient numbers, doctor availability, and patient loads.

Table 3: Procedures Performed at the OPD (2019 and. 2022)

Procedure	Before COVID (2019)	As a percentage from total OPD visits	After COVID (2022)	As a percentage from total OPD visit
Dressing for wounds	37848	12.4	27939	17.1
Nebulization	7913	2.6	2232	1.3
DOT treatment	2107		Not done	
ARV treatment	10093	3.3	9558	5.8
IV/IM Injections	3364	1.1	4327	2.6

The DOT treatment procedure was not conducted in 2022

Table 4: Efficiency, Effectiveness, and Quality of Care (2019 and 2022)

	Before COVID (2019)	After COVID (2022)
Highest number of OPD patients per day	1469	915
Lowest number of OPD patients per day	42	22
Average number of doctors per day	13	10
Average number of patients per doctor per day	68	39
Average number of patients per doctor per hour	08	05

Discussion

The results of this study highlight the significant impact of the COVID-19 pandemic on outpatient healthcare service utilization in Base Hospital Homagama. A similar reduction in outpatient visits was also reported in other countries. In the United States, outpatient care utilization dropped by nearly 40% during the pandemic due to lockdowns, public fear, and disruptions in healthcare services [4]. However, some differences in post-pandemic OPD recovery rates have been noted, with high-income countries recovering faster than low—and middle-income countries [5].

The overall reduction in OPD visits in post-COVID-19 (2022) compared to pre-pandemic levels (2019) reflects the residual effects of the pandemic on healthcare access. The COVID-19 pandemic significantly disrupted healthcare access, leading to a notable reduction in outpatient department (OPD) visits in 2022 compared to pre-pandemic levels in 2019. A study published in BMC Public Health assessed the challenges in accessing healthcare during the pandemic, highlighting a substantial decline in outpatient visits [6]. Additionally, research in BMC Pediatrics reported a 21.6% decrease in overall outpatient clinic visits during the pandemic compared to the 2016–2019 period [7].

The decrease in patient numbers was consistent across months, as well as across days of the week. Several factors likely contributed to this decline, including patient hesitancy to seek in-person care due to fear of infection, the shift towards telemedicine, and healthcare system disruptions. Similar trends were observed in a study conducted in India, where outpatient visits decreased by 43% during the pandemic, and teleconsultations became an essential alternative [8].

While OPD visits fell, the percentage of procedures performed per patient increased from 20% in 2019 to 27% in 2022. This may reflect a prioritization of patients with more severe or procedural needs and a shift in patient behavior toward seeking care only when absolutely necessary.

The reduction in OPD visits was seen across all age groups. Elderly patients (aged >65 years) saw a smaller reduction in visits, likely because they are at higher risk of severe illness and may have been less inclined to delay or avoid medical care. This finding is consistent with a

study in Spain, where elderly patients continued to visit healthcare centres despite pandemic restrictions [9]. However, the lower rates of visits for children under 9 years of age could be attributed to reduced disease transmission among children during the lockdown due to school closures and limited social contact.

Both waiting times for doctor consultations and dispensary services improved in 2022 compared to 2019. The average waiting time for doctor consultations dropped from 23.29 minutes to 20.88 minutes, and dispensary waiting time decreased from 13.37 minutes to 9.10 minutes. This reduction in waiting times is likely attributable to the decreased patient load, allowing healthcare professionals to manage appointments more efficiently. However, this effect was not uniform across all regions or healthcare systems. In the UK, the pandemic caused significant disruptions to elective care services, leading to increased waiting times and a substantial backlog of patients awaiting treatment [10].

A notable decrease was observed in encounters for common respiratory symptoms such as cough, sore throat, and fever, likely due to the public's greater adherence to preventive measures like mask-wearing, social distancing, and improved hygiene. This aligns with international reports of reduced respiratory infections during the pandemic. However, there was an increase in complaints related to wheezing, possibly reflecting a rise in patients with post-COVID complications or exacerbated chronic respiratory conditions.

Although the number of doctors available per day reduced from 13 in 2019 to 10 in 2022, there was a reduction in patient load per doctor, improving the doctor-to-patient ratio. This finding is significant, as it suggests that fewer doctors were able to maintain effective patient management, possibly contributing to improved efficiency metrics such as reduced waiting times.

While secondary data was used for this study, the unavailability of more granular data limited the ability to categorize age groups for better understanding (e.g., infants, children, adults, and elderly).

Conclusion and Recommendation

The COVID-19 pandemic significantly altered outpatient service utilization, with a marked reduction in patient visits and changes in the nature of encounters.

The findings suggest that while OPD visit numbers decreased, there was an increase in the percentage of patients requiring procedural interventions. Additionally, improvements in waiting times suggest that the healthcare system was able to manage lower patient volumes more effectively.

Special emphasis should be placed on addressing barriers to OPD utilization, particularly for vulnerable populations like children and low-income groups, by implementing targeted outreach and education programs. Efforts should also focus on improving procedural capacity and respiratory care services

to manage the rise in post-COVID complications effectively. Additionally, optimizing workforce allocation and sustaining improvements in waiting times through efficient scheduling and resource management will enhance patient satisfaction and quality of care. Data systems should be upgraded to allow more detailed analysis of age-specific healthcare needs for better planning and service delivery. As elderly and high-risk populations continue to seek care during the pandemic, healthcare providers should prioritize services for these groups to ensure timely access to treatment.

Author declaration

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