ACHSM Asia-Pacific Journal of Health Management

RESEARCH ARTICLE

ASSESSMENT OF HEALTHCARE SERVICE PROVISION TO PEDIATRIC PATIENTS WITH CHRONIC DISEASES DURING THE COVID-19 LOCKDOWN

Nehal M. El-Koofy[1], Mortada H. El-Shabrawi[1], Mai Mohamed Abd Elhamed[1], Marwa M. Zein[2], Ramy Saleh Morsy Abdelghany[3], Eman Aly Abdelaziz[1]*

1. Department of Pediatrics, Faculty of Medicine, Cairo University, Manial, Cairo, Egypt
2. Department of public health and community medicine, Faculty of Medicine, Cairo University, Manial, Cairo, Egypt
3. Department of Pediatrics, Egyptian Armed Forces College of Medicine, Egypt

Correspondence: marwa.zein@cu.edu.eg

ABSTRACT

BACKGROUND:

The Coronavirus disease 2019 (COVID-19) pandemic's impact on essential health services is of great concern. The most important step in managing any patient with chronic disease is compliance with follow-up visits.

AIM:

This study aims to assess healthcare services during the period of the COVID-19 pandemic lockdown regarding chronic patient visits and care, as well as to assess patient satisfaction with the provision of healthcare services during the lockdown period.

METHODS:

A cross-sectional study was performed at Cairo University Specialized Children Hospital, Egypt, through an interview questionnaire with the caregivers of chronic patients about the health care services throughout the COVID-19 pandemic from December 2020 to July 2021.

RESULTS:

More than 60% were satisfied with the healthcare service provision during the COVID-19 pandemic lockdown. Satisfaction toward medical sub-specialties was significantly higher than that of surgical ones. Patients who attended for follow-up markedly decreased during the lockdown.

CONCLUSION:

During the COVID-19 pandemic, healthcare service provision was negatively affected. Follow-up of chronic patients and continued medical care were challenging points.

KEYWORDS

COVID-19; pandemic; health services; pediatrics; chronic patients

INTRODUCTION

Severe acute respiratory syndrome Coronavirus 2 (SARS-CoV-2) infection, also described as Coronavirus disease 2019 (COVID-19), erupted as an outbreak in China in December 2019 [1]. The World Health Organization (WHO) declared this outbreak a public health emergency, and COVID-19 was designated as a pandemic [2]. The pandemic effects are not only related to physical health that lead to morbidity and mortality from the disease itself, but also have a range of negative social, economic, and political consequences [3]. The COVID-19 pandemic had caused significant disruption in the delivery of health services, particularly in resource-limited countries that sent a message of the importance of building strong and resilient health systems [4].

Patients with chronic illnesses, like obesity, cardiovascular disease, diabetes, and kidney disease, are more likely to experience serious difficulties and pass away from COVID-19 throughout the pandemic. Additionally, it is possible that skipping routine follow-up care will harm the patient's health [5]. Fear of contracting COVID-19 can lead people to avoid healthcare facilities, and strict lockdowns to combat the pandemic can influence people's socioeconomic status and ability to access medical facilities [6].

Evaluation of patients' satisfaction with healthcare services has clinical significance to patients to adhere to treatment [7]. The power of reality in the healthcare system has been significantly impacted by reports that COVID-19 hurts method and treatment adherence, increases treatment dissatisfaction, and causes patients to cease receiving treatment and follow-up [8]. In this survey, our objective was to evaluate the availability of healthcare services during the shutdown of the COVID-19 pandemic and to discover to what extent patients were satisfied with the health services provided during the shutdown.

METHODS

STUDY DESIGN:

Epidemiological, observational cross-sectional, analytical study.

STUDY SETTING:

Medical and surgical outpatient clinics of the Specialized Children Hospital and El-Mounira Children Hospital, Cairo University, Egypt.

STUDY POPULATION:

Pediatric patients less than 14 years of age with chronic diseases requiring regular follow-up visits at the specialized chronic outpatient clinics of medical and surgical sub-specialties.

SAMPLING TYPE AND TECHNIQUE:

Using Open Epi, Version 3 [9], the sample size was recorded by a single population proportion formula:

Sample size n = (DEFF*Np(1-p))/ ((d2/Z21-a/2*(N-1)+p*(1-p)).

Taking a proportion of 44.6% of patients' satisfaction in North Shoa Health Care Facilities during the COVID-19 pandemic [10]. The minimum sample size was 408 when considering a 95% confidence interval, a 5% marginal error, and a 10% non-response rate.

The study participants' sample was convenient (close to the researcher's hand during the data collection period).

STUDY DURATION:

From December 2020 to July 2021.

DATA COLLECTION TOOL:

A questionnaire was derived from the Arabic version of the modified client satisfaction questionnaire (CS-42) [11], and updated to evaluate the effect of the COVID-19 pandemic lockdown period on routine follow-up visits of chronic patients.

DATA COLLECTION TECHNIQUE:

The researchers collected data through an interview questionnaire with the patient's caregivers after obtaining verbal consent.

The questionnaire consisted of five parts:

1. Socio-demographics
2. Follow-up before pandemic
3. Follow-up during the pandemic and access to services such as laboratory, radiology, and pharmacy
4. Affordability of service
5. Assessment of patient satisfaction

STATISTICAL ANALYSIS:

The accuracy and coherence of data were checked. On the computer, pre-coded data were entered using Microsoft Office Excel software 2019 version). The pre-coded data were then transferred and referred to the IBM SPSS Statistics 26 (Statistical Package of Social Science Software), a program for performing statistical analysis. Qualitative variables were described as frequency and percentage, quantitative variables were described as mean and standard deviation (SD).

Chi-square and Fisher's exact tests were used to compare qualitative variables, with (p-value ≤ 0.05) considered statistically significant.

RESULTS

A total of 445 caregivers completed the interview questionnaire. The mean age of the patients was 7.2 ± 3.8 years; 273 (62.3%) of the patients were males and 165 (37.7%) were females. More than 80% of the patients' caregivers were mothers with a mean age of 36±7 years. Regarding the education status of the caregiver, 51.1% of primary or secondary school graduates, 9% of university, 0.5% of postgraduates, 1.4% can read and write, and more than one-third (38.2%) of them were illiterate.

Access to the hospital was far (distance) for 64.4% of the patients. More than 90% of them reached the hospital with two or more transportation means, and more than 80% of journeys to the hospital took more than one hour. Transportation costs more than 50 LE ($2.7) for more than 60% of patients. More than 60% of the patients come for follow-up three times or more per year, as shown in Table 1. Regarding follow-up visits during the COVID-19 pandemic lockdown, more than half (54.6%) of the interviewees said that follow-up in the hospital was not affected by the COVID-19 pandemic lockdown and attended follow-up during the lockdown. Moreover, they reported that there were no other follow-up methods other than coming to the hospital. More than 60% stated that emergency services were available during the lockdown.

As shown in Tables 2 and 3, there was no statistically significant difference between attending for follow-up during the lockdown and sociodemographic characteristics of the patients and their caregivers and reasons for follow-up in this hospital (p-value > 0.05). Patients' caregiver satisfaction with hospital services during the COVID-19 pandemic is shown in Table 4. The caregivers were asked about their satisfaction level with hospital services, and over 60% were satisfied between 60-80%. Medical clinics during lockdown showed other ways for follow-up other than coming to the hospital and private clinics with a statistically significant difference from surgical clinics (p-value < 0.001). Caregivers of the patients were statistically more satisfied in clinics of medical subspecialties than in surgical ones (p-value = 0.002). figure 1

The differences in the number of follow-up patients in all clinics over the past 3 years (2019, 2020, until July 2021) and changes are listed in Figure 2. The number of patients in outpatient clinics decreased by more than 90% from 2020 & to July 2021 compared to 2019.

TABLE 1: ACCESSIBILITY TO THE HOSPITAL AND FOLLOW-UP VISITS BEFORE THE PANDEMIC

Variable	Value N (%)
Accessibility to the hospital	
Distance from home to hospital	
Near	158 (35.6)
Far	286 (64.4)
The number of transportations to reach the hospital	
One	36 (8.1)
Two	190 (43.0)
three or more	216 (48.9)
Time taken to come to the hospital	
less than 1 hour	81 (18.2)
from 1-2 hours	244 (54.8)
3 hours or more	120 (27.0)

Transportation payment to come to the hospital	
20-50 LE (1-2.5 $)	173 (39.0)
50-100 LE (2.5-5 $)	152 (34.2)
>100 LE (>5 $)	119 (26.8)
Follow-up visits	
Frequency of visits per year before the pandemic	
1-2	173 (39.1)
3-5	147 (33.3)
>5	122 (27.6)
Reasons for follow-up in the hospital	
Higher cost of follow-up in other places	28 (6.3)
I trust the doctors here	279 (62.8)
Here they give me the treatment	37 (8.3)
The service is not available next to me	100 (22.5)

TABLE 2 RELATION BETWEEN ATTENDANCE FOR FOLLOW-UP IN THE HOSPITAL DURING THE COVID-19 LOCKDOWN AND THE SOCIO-DEMOGRAPHICS OF THE PATIENTS

	Attending follow-up during the COVID-19 lockdown period n (%)		
	Yes	**No**	**P-value**
Gender of the child			
Male	144 (52.7)	129 (47.3)	0.99
Female	87 (52.7)	78 (47.3)	
Age of the patient			
<10 years	167 (50.2)	166 (49.8)	0.06
>10 years	67 (60.4)	44 (39.6)	
Maternal Education			
Uneducated	90 (53.6)	78 (46.4)	0.85
Educated	141 (52.6)	127 (47.4)	
Paternal Education			
Uneducated	78 (53.8)	67 (46.2)	0.66
Educated	137 (51.5)	129 (48.5)	
Maternal occupation			
Not working	209 (53.9)	179 (46.1)	0.41
Not a continuous work	5 (62.5)	3 (37.5)	
Working	17 (43.6)	22 (56.4)	
Paternal occupation			
Not working	25 (48.1)	27 (51.9)	0.76
Not a continuous work	99 (53.5)	86 (46.5)	
Working	90 (52.0)	83 (48.0)	
Monthly household income per month			
<1000 LE (<54 $)	39 (59.1)	27 (40.9)	0.37
1000-2000 LE (54- 108 $)	146 (52.9)	130 (47.1)	
>2000 LE (>108 $)	49 (48.0)	53 (52.0)	
Place of living			
Urban	89 (52.0)	82 (48.0)	0.82
Rural	144 (53.1)	127 (46.9)	

Distance from home to hospital			
Nearby	87 (55.1)	71 (44.9)	0.46
Far	147 (51.4)	139 (48.6)	
The number of transportations to reach the hospital			
One	19 (52.8)	17 (47.2)	0.99
Two	101 (53.2)	89 (46.8)	
Three or more	113 (52.3)	103 (47.7)	

TABLE 3 RELATION BETWEEN ATTENDING THE HOSPITAL FOR FOLLOW-UP DURING THE COVID-19 LOCKDOWN AND REASONS FOR COMING FOR FOLLOW-UP IN THE HOSPITAL

Reason for follow-up in the hospital	Attending for follow-up during the period of COVID lockdown n (%)	
	Yes	No.
Higher cost of follow-up in other places	11 (39.3)	17 (60.7)
I trust the doctors here	154 (55.2)	125 (44.8)
Here they give me the treatment	24 (64.9)	13 (35.1)
The service is not available next to me	45 (45.0)	55 (55.0)
p-value	**0.067**	

TABLE 4 PATIENTS' SATISFACTION RESPONSES TOWARD THE QUALITY OF HEALTH CARE IN THE HOSPITAL

Items of patients´ satisfaction	Agree on n (%)	Neutral n (%)	Disagree n (%)
Ease of access to the service in non-pandemic situations	298 (67.1)	120 (27.0)	26 (5.9)
There were fixed follow-up appointments	164 (36.9)	58 (13.1)	222 (50.0)
I knew the follow-up appointments	192 (43.2)	55 (12.4)	197 (44.4)
Someone was calling to remind me of the clinic's appointment	59 (13.3)	50 (11.3)	335 (75.5)
The clinics were open to provide patients with treatment.	167 (37.8)	188 (42.5)	87 (19.7)
The waiting areas were acceptable to me	258 (58.1)	72 (16.2)	114 (25.7)
It was easy to move between the hospital services (laboratory, pharmacy, x-ray ...)	279 (62.8)	95 (21.4)	70 (15.8)
The number of nurses was sufficient to receive the service	309 (69.6)	129 (29.1)	6 (1.4)
Did you find enough help from the nurses to make follow-up appointments?	302 (68.2)	127 (28.7)	14 (3.2)
The number of doctors in the service	303 (68.2)	126 (28.4)	15 (3.4)
All the required services were available in the hospital (pharmacy, laboratory, x-rays)	181 (40.9)	85 (19.2)	177 (40.0)
The pharmacy was opened to give me the treatment	174 (39.3)	222 (50.1)	47 (10.6)
The pharmacy was working to provide treatment	281 (63.3)	112 (25.2)	51 (11.5)
X-rays were convenient for me	280 (63.1)	112 (25.2)	52 (11.7)
I can afford to do labs outside of the hospital during the pandemic	76 (17.1)	157 (35.4)	211 (47.5)
I can afford the ticket price	402 (90.5)	30 (6.8)	12 (2.7)
I can afford labs costs at the hospital	290 (65.3)	22 (5.0)	132 (29.7)

The cost of transportation to the hospital is acceptable to me	385 (86.7)	8 (1.8)	51 (11.5)

FIGURE 1 THE RELATION BETWEEN THE PRESENCE OF ANOTHER WAY OF FOLLOW-UP DURING THE COVID-19 LOCKDOWN AND THE TYPE OF FOLLOW-UP CLINICS

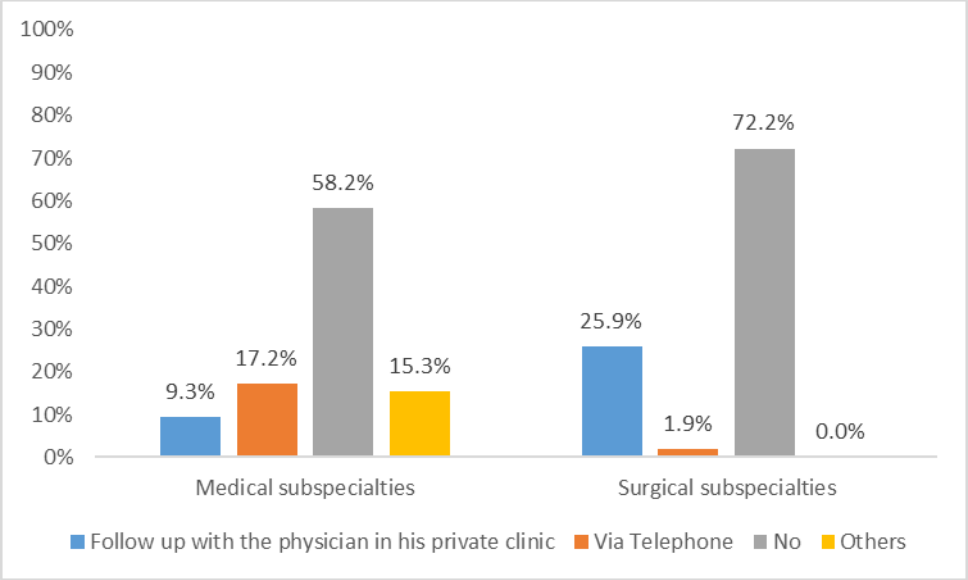
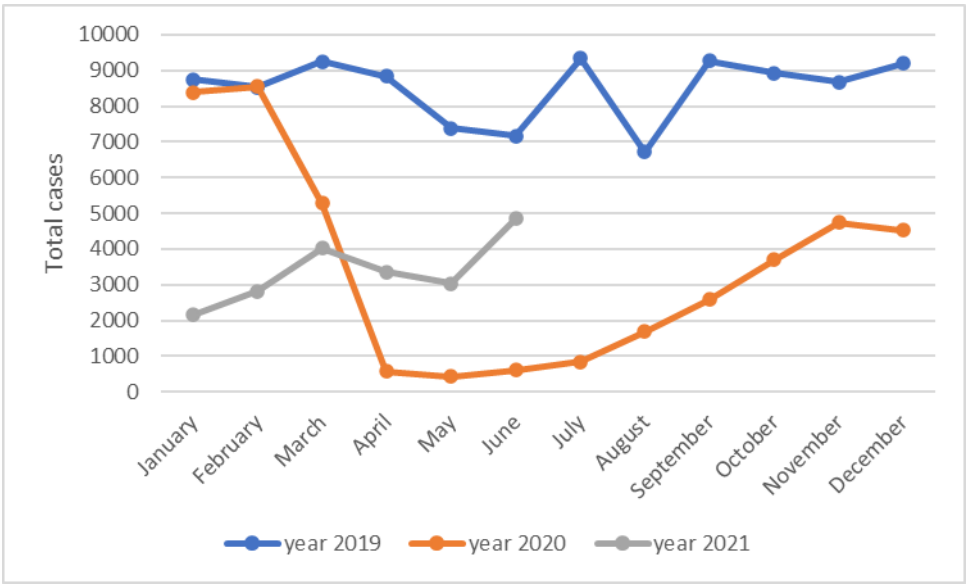


FIGURE 2: THE TREND LINE OF TOTAL FOLLOW-UP CASES IN THE FOLLOW-UP CLINICS OVER 3 CONSECUTIVE YEARS



DISCUSSION

The COVID-19 pandemic's impact on important health services has a great concern [12]. Loss of vital health services probably negatively impacts public health, especially for the most vulnerable population segments, including children, the elderly, and those with disabilities or chronic illnesses [13]. In the current study, 62.7% of caregivers were 60-80% satisfied with the health services during the pandemic, and 13.1% were < 60% satisfied. The study was carried out in North Shoa to validate patient satisfaction with health services throughout the COVID-19 pandemic and showed that overall satisfaction was 44.6% [10]. In the current study, more than half of the caregivers said that follow-up was not affected by the suppression of the COVID-19 pandemic. This disagrees with another study by Zhang et al., who found that 75.5% of parents of chronic patients told them that the COVID-19 outbreak had a significant influence on the regular medical medication of

their children [14]. Furthermore, in a study of chronic rheumatology patients in 15 Arab countries carried out by Ziadé et al.,, the COVID-19 pandemic had a significant negative effect on visits to rheumatology, access to hydroxychloroquine, and persistence of chronic medications [15].

In this study, it was found that there was no statistically significant difference between coming to follow-up during the COVID-19 pandemic and the patients´ sociodemographic background. The low-income individuals were stricter to come for follow-ups, which may be explained by their inability to go to private hospitals or clinics, and transportation was not a problem for them. In a study by Aklilu et al., patients noted that their clinic appointments were frequently missed due to transportation problems and concern about contracting COVID-19 in the hospital [16].

In this study, medical subspecialties continued follow-up with patients during the lockdown in ways other than coming to the hospital or private clinics, such as via Telephone calls, WhatsApp, and Zoom meetings. According to Ashton et al., phone and webcam reviews increased rapidly in 2020, allowing for ongoing care for nearly all patients with inflammatory bowel disease [17]. Another study by Deriba et al. showed that traveling long distances to far health facilities to receive top-notch medical care could put the patient at risk for COVID-19. Telemedicine may address this issue in low- and middle-income nations to save time and resources and manage and prevent the COVID-19 pandemic [10]. Furthermore, it was discovered that fewer patients were coming in for surgical and medical follow-ups for chronic diseases, and the surgical outpatient department saw the largest decline. Significantly fewer people visited the emergency room, especially for urgent surgeries. These results were similar to those found in a study by Abdela et al., in which patient flow was reduced in all elements of basic healthcare service [18].

We found that the outpatient clinic trend line decreased by more than 90% in 2020 and 2021 compared to 2019. This agrees with what was found in a study by Abdela et al. (2020), who reported that the number of surgical and medical visits was reduced (by more than 50%).

STRENGTHS OF THE STUDY:

this study measured the patient satisfaction of a variety of chronic pediatric patients attending one of the largest highly specialized tertiary pediatric hospitals in Egypt and the middle east during the COVID-19 lockdown.

LIMITATIONS OF THE STUDY:

due to the time constraints, it was better to explore more about the other ways that were done to communicate with the patients during the pandemic lockdown.

Meaning of the study and ideas for future research: Health care services, especially emergency and follow-up services, need to be protected from collapses by innovative, new ideas as many people will be affected whenever those services are affected. This study found that some efforts were performed during the pandemic to help patients who were used to follow-up in the specialized clinics before the pandemic. One of these efforts was using telemedicine for follow-up and organizing their follow-up.

CONCLUSION

During the COVID-19 pandemic, healthcare service provision was negatively affected. Follow-up of chronic patients and continued medical care were challenging points. Our results showed that 62.7% were 60-80% satisfied with the service. During this period, patients who were following up in medical subspecialties were more satisfied than surgical ones. Sociodemographic data and transportation did not hinder patients from seeking medical care.

The COVID-19 pandemic lockdown affected chronic patients' visits to outpatient clinics with a reduction in the number of follow-up patients in 2020 and 2021 compared to 2019. Many outpatient clinics, mainly medical ones, took certain measures to facilitate the follow-up of their patients, like using WhatsApp or phone calls. The technical and logistic arrangement of alternative ways to remotely follow up on chronic patients is an important issue that each hospital should highlight.

ETHICAL CONSIDERATION:

Informed oral consent was obtained from the caregivers of the patient. All the included participants were treated according to the Helsinki Declaration of biomedical ethics This study's protocol was accepted by the scientific and ethical committee of the Faculty of Medicine, Cairo University, Egypt. The ethics committee approval number is (REC NO: MS-121-2021).

CONFLICT OF INTEREST:
No conflict of interest

SOURCE OF FUNDING:
Self-funded

References:

1. World Health Organization. Coronavirus (COVID-19) events as they happen. WHO. 2022. available: https://www.who.int/emergencies/diseases/novel-coronavirus-2019/events-as-they-happen (accessed 12/05/22).
2. World Health Organization. Coronavirus disease (COVID-19). WHO. 2022. available. https://www.who.int/emergencies/diseases/novel-coronavirus-2019?adgroupsurvey=%7Badgroupsurvey%7D&gclid=Cj0KCQjw4PKTBhD8ARIsAHChzRJrIBIkYC5NYEt6JPUj0IINRUqRNu8d3oR7uJxy1yqf-ISg-QRpAGsaAlYMEALw_wcB (accessed 12/05/22).
3. Yoosefi Lebni J, Abbas J, Moradi F, Salahshoor MR, Chaboksavar F, Irandoost SF, et al. How the COVID-19 pandemic effected economic, social, political, and cultural factors: A lesson from Iran. Int J Soc Psychiatry 2021;67:298–300. https://doi.org/10.1177/0020764020939984.
4. Haileamlak A. The impact of COVID-19 on health and health systems. Ethiop J Health Sci 2021;31:1073–4. https://doi.org/10.4314/ejhs.v31i6.1.
5. Zhou J, Otter JA, Price JR, Cimpeanu C, Meno Garcia D, Kinross J, et al. Investigating Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) Surface and Air Contamination in an Acute Healthcare Setting During the Peak of the Coronavirus Disease 2019 (COVID-19) Pandemic in London. Clin Infect Dis 2021;73:e1870–7. https://doi.org/10.1093/CID/CIAA905.
6. Ferguson NM, Laydon D, Nedjati-Gilani G, Imai N, Ainslie K, Baguelin M, Bhatia S, Boonyasiri A, Cucunubá Z, Cuomo-Dannenburg G, Dighe A. Impact of non-pharmaceutical interventions (NPIs) to reduce COVID-19 mortality and healthcare demand. available https://www.imperial.ac.uk/mrc-global-infectious-disease-analysis/covid-19/report-9-impact-of-npis-on-covid-19/ (accessed 15/01/23).
7. Damiani G, Gironi LC, Kridin K, Pacifico A, Buja A, Bragazzi NL, et al. Mask-induced Koebner phenomenon and its clinical phenotypes: A multicenter, real-life study focusing on 873 dermatological consultations during COVID-19 pandemics. Dermatol Ther 2021;34. https://doi.org/10.1111/DTH.14823.
8. Gironi LC, Boggio P, Giorgione R, Damiani G, Savoia P. The impact of COVID-19 pandemics on dermatologic surgery: real-life data from the Italian Red-Zone. J Dermatolog Treat 2022;33:1–7. https://doi.org/10.1080/09546634.2020.1789044.
9. OpenEpi - Toolkit Shell for Developing New Applications n.d. available https://www.openepi.com/SampleSize/SSPropor.htm (accessed 9/06/22).
10. Deriba BS, Geleta TA, Beyane RS, Mohammed A, Tesema M, Jemal K. Patient Satisfaction and Associated Factors During COVID-19 Pandemic in North Shoa Health Care Facilities. Patient Prefer Adherence 2020;14:1923. https://doi.org/10.2147/PPA.S276254.
11. Fatah SAMA El, Khairy WA, Salem MR. Key determinants of client satisfaction with primary healthcare services. Int J Behav Healthc Res 2018; 6:237. https://doi.org/10.1504/ijbhr.2018.101574.
12. Li Q, Guan X, Wu P, Wang X, Zhou L, Tong Y, et al. Early Transmission Dynamics in Wuhan, China, of Novel Coronavirus–Infected Pneumonia. N Engl J Med 2020;382:1199–207. https://doi.org/10.1056/NEJMOA2001316/SUPPL_FILE/NEJMOA2001316_DISCLOSURES.PDF.
13. Kieny MP, Evans DB, Schmets G, Kadandale S. Health-system resilience: reflections on the Ebola crisis in western Africa. Bull World Health Organ 2014;92:850. https://doi.org/10.2471/BLT.14.149278.
14. Zhang G, Yang H, Zhang A, Shen Q, Wang L, Li Z, et al. The Impact of the COVID-19 Outbreak on the Medical Treatment of Chinese Children with Chronic Kidney Disease (CKD) : A Multicenter Cross-section Study in the Context of a Public Health Emergency of International Concern 2020. https://doi.org/10.1101/2020.02.28.20029199.https://DOI: 10.1101/2020.02.28.20029199 .
15. Ziadé N, el Kibbi L, Hmamouchi I, Abdulateef N, Halabi H, Hamdi W, et al. Impact of the COVID-19 pandemic on patients with chronic rheumatic diseases: A study in 15 Arab countries. Int J Rheum Dis 2020;23:1550–7. https://doi.org/10.1111/1756-185X.13960.
16. Aklilu TM, Abebe W, Worku A, Tadele H, Haile T, Shimelis D, et al. The Impact of COVID-19 on Care Seeking

Behavior of Patients at Tertiary Care Follow-up Clinics: A Cross-Sectional Telephone Survey. Addis Ababa, Ethiopia. MedRxiv 2020:2020.11.25.20236224. https://doi.org/10.1101/2020.11.25.20236224.

17. Ashton JJ, Kammermeier J, Spray C, Russell RK, Hansen R, Howarth LJ, et al. Impact of COVID-19 on diagnosis and management of paediatric inflammatory bowel disease during lockdown: a UK nationwide study. Arch Dis Child 2020;105:1186–91. https://doi.org/10.1136/ARCHDISCHILD-2020-319751.

18. Abdela SG, Berhanu AB, Ferede LM, van Griensven J. Essential Healthcare Services in the Face of COVID-19 Prevention: Experiences from a Referral Hospital in Ethiopia. Am J Trop Med Hyg 2020;103:1198. https://doi.org/10.4269/AJTMH.20-0464.