

Trends in patient visits before and during the COVID-19 pandemic: a case in a public health center

Rr. Pipiet Okti Kusumastiwi^{1*}, Giras Budi Raharja², Sella Shaquila Damayanti², Nisriina Yusan Nindy Azzahra²

Abstract

Purpose: This study examines changes in patient visits before and during the COVID-19 pandemic in a public health center. **Methods:** Employing longitudinal descriptive research, data were extracted from the clinic's register book using purposive sampling at the Dental Polyclinic Tepus II at the Public Health Center in Gunung Kidul, Yogyakarta. The study focused on patients receiving scaling, tooth extraction, and filling treatments, comparing data from ten months before and during the pandemic. **Results:** The analysis reveals a noticeable reduction in patient numbers during the pandemic, particularly for scaling treatments. Despite the decline, the clinic continued to offer dental services, with consistent visits for tooth extractions. Gender distribution and JKN payment methods remained unchanged. The most significant drop in patient visits occurred in the second month of the pandemic, with a gradual recovery to pre-pandemic levels by the 9th and 10th months. **Conclusion:** The COVID-19 pandemic decreased patient visits, with the most affected service being scaling. Despite these challenges, the clinic upheld its commitment to providing essential dental care, adapting to the new normal, and recovering patient volumes to pre-pandemic figures.

Keywords: COVID-19 pandemic; public health center; trend in patient

Submitted:

November, 6th 2023

Accepted:

December 7th, 2024

Published:

January 30th, 2025

¹Dental Public Health Department, Faculty of Dentistry, Universitas Muhammadiyah Yogyakarta, Indonesia

²Undergraduate Study Program, Faculty of Dentistry, Universitas Muhammadiyah Yogyakarta, Indonesia

*Correspondence:

pipietokti@umy.ac.id

INTRODUCTION

The SARS-CoV-2 virus outbreak and the resulting illness known as Coronavirus Disease 2019 (COVID-19) at the beginning of 2020 shook the world. On March 9th, 2020, the World Health Organization (WHO) officially declared COVID-19 a pandemic. The rapid spread of COVID-19 is one of the basic considerations for WHO to designate COVID-19 as an airborne disease that can be transmitted through the air.

The impact of the COVID-19 pandemic on health services, including dental and oral health services, is very broad. Several actions in dentistry produce aerosols, which are considered very risky for virus

transmission. It can worsen for patients who do not wear masks during dental and oral care. Droplets and aerosols from someone who breathes can spread as far as 1 meter [1], causing dental and oral health services to be more at risk of virus transmission. The facts above place dentistry as the job most at risk of COVID-19 transmission.

In response to the facts above, on March 16th, 2020, the American Dental Association (ADA) recommended that dental practices postpone dental treatment and only provide emergency dental services. The increasingly worrying spread of COVID-19 has forced the American Dental Association (ADA) to update its

recommendations, advising dental practices to close their services. As a result, access to dental care has decreased substantially.

Based on *surat edaran PDGI 4072/PB/PDGI/VII-2/2021*, the Indonesian Dentists Association (PDGI) recommends that dentists temporarily stop practicing, except for emergencies. Therefore, it can be said that since the beginning, dentists have implemented a "lockdown" in the practice of their profession as an effort to prevent the spread of COVID-19 transmission. It is not solely because dentists only think about themselves not being infected, but this policy was taken for the safety of patients to avoid cross-infection. More broadly, this policy was established in the context of the dental profession's dedication to helping protect the public from the dangers of the spread of COVID-19.

The assumption that COVID-19 is unrelated to dental health is increasingly being marginalized. The phenomenon proves that dental practices are at high risk for the transmission of COVID-19. If examined in depth, it shows that dental health is inseparable from overall health. Although it comes from a difficult situation, with the outbreak of COVID-19, people have become increasingly aware that dental health is an integral part of overall body health. Dental health is not solely related to the teeth and mouth organs but is also related to the health of the body as a whole. Teeth and mouth can lead to disease in other parts of the body. Maintaining healthy teeth and mouth is an effort to maintain the whole body's health and prevent disease in other parts of the body.

There has been much research on patient visits during the pandemic, but specific research on dental patient visits, especially at public health centers, is rarely done. This research presents trend data on dental patient visits during the pandemic at community health centers in remote areas where, in some parts of the working area, there is no adequate internet access, and some residents do not have smartphones, thus hampering the dissemination of information, especially information sourced from the internet.

With all its impacts on dental and oral health services, the pandemic is a challenge that must be resolved immediately. Decreasing visits to the dentist is a phenomenon that must be followed up, especially for first-level health services (puskesmas) as the spearhead of health services. Preventive and promotive programs, which are the advantages of community health centers, must be adaptive to the phenomena that occur. Policies related to dental and oral health during the pandemic must be prepared immediately and adapted to the dynamics of the use of dental and oral health services, which decreased during the pandemic. An overview of the use of dental and oral health services during the

pandemic is needed to consider formulating policies related to dental and oral health. This research aims to analyze trends in patient visits before and during the COVID-19 pandemic at one community health center.

METHODS

This study is longitudinal descriptive research. The data used in this research was secondary data from the register book. The sampling method used was purposive sampling. The population in this study was the dental clinic patients at Tepus II Gunung Kidul Community Health Center 10 months before and 10 months during the pandemic.

The data was collected on patients undergoing scaling, tooth extraction, and tooth filling. The operational definition of scaling in this study is tartar cleaning carried out either manually or with an ultrasonic scaler (USS). Tooth extraction removes deciduous or permanent teeth using topical anesthesia (Chlor Ethil) and infiltration. A dental filling is a dental treatment that directly restores teeth with cavities, caries, or fractures using glass ionomer cement or composite resin. This research received ethical clearance from the Ethics Commission of Universitas Muhammadiyah Yogyakarta (009//EC-EXEM-KEPK-FKIK-UMY/XIII/2022) on December 15th, 2022.

RESULTS

Table 1 shows that patient visits were always monthly, so it can be concluded that the community health center continued to provide dental and oral health services during the pandemic.

Table 1. Number of patients with tooth extraction, tooth filling, and scaling

Month	Before pandemic			During pandemic		
	Filling	Scaling	Extraction	Filling	Scaling	Extraction
1	6	17	34	0	10	28
2	6	17	28	0	0	13
3	15	18	42	1	0	18
4	11	22	42	2	3	37
5	8	13	62	6	1	37
6	13	27	53	1	1	27
7	5	15	28	5	2	33
8	8	11	42	5	3	35
9	5	24	33	18	10	45
10	13	13	34	7	11	60
Total	90	177	398	45	41	186
Average	9	17,7	39,8	4,5	4,1	18,6

Patients were treated with teeth extraction every month, even during the pandemic. There were no

teeth-filling patients in the pandemic's first and second months, but there were still scaling patients using manual scaling. In the second and third months of the pandemic, there were no patients with scaling treatment. Of the three treatments, the most significant decrease in the number of patients occurred in the scaling service, which fell by 76.8% from 177 patients before the pandemic to 41 patients during the pandemic.

Females consistently access three types of care more often than males. This trend has continued both before and during the pandemic. Before the pandemic, 62 female patients (68.9%) underwent dental fillings, and only 28 (31.1%) were male. During the pandemic, 31 female patients (68.9%) underwent dental fillings, and only 14 male patients (31.1%). Scaling patients are also dominated by female patients, 62.3% (before the pandemic) and 55.9% (before the pandemic), while men are 37.7% (before the pandemic) and 44.1% (after the pandemic). Before the pandemic, 157 female patients (86.7%) underwent tooth extraction and only 22 (13.3%) male patients. During the pandemic, 37 female patients (82.2%) underwent tooth extraction, and only 8 (17.8%) were male.

Highlights the dominance of the JKN payment method for these care types, with its preeminence remaining unchanged across the pre-pandemic and pandemic periods. Based on the payment method, both before and during the pandemic, the JKN payment method remains dominant for the three types of care. Before the pandemic, 72.2% (65 patients) were JKN participants in the kind of dental filling service, so the

number of patients who were not JKN participants was 27.8% (25 patients). All dental filling patients during the pandemic are JKN participants. Before the pandemic, 86.2% (156 patients) were JKN participants in the scaling service type, so the number of patients who were not JKN participants was 13.8% (25 patients). During the pandemic, in the scaling service type, 73.3% (23 patients) were JKN participants, so the number of patients who were not JKN participants was 26.7% (12 patients). Tooth extraction patients are also dominated by JKN participant patients, 73.1% (before the pandemic) and 63.7% (before the pandemic). In comparison, those who are not JKN participants are 26.9% (before the pandemic) and 36.3% (after the pandemic).

Table 2 shows that scaling patients before and during the COVID-19 pandemic based on age were both dominated by the 26-45 year age range, 84 patients with 46.4% (before the pandemic) and 10 patients with 42.1% (during the pandemic). The highest number of tooth extractions before and during the COVID-19 pandemic were in the 5-11 year age range, with a percentage of 64.1% (before the pandemic) and 71.5% (during the pandemic). Patients' age distribution in scaling care was changed before and during the pandemic. Before the pandemic, the number of patients aged 5-11 years, 12-25 years, and 26-65 years had almost the same percentage, between 24.2 – 28.6%. Meanwhile, during the pandemic, it was dominated by patients in the 26-65 year age range, reaching 53.3%. During the pandemic, there was a decrease in patient visits in the age range <5 years, 5-11 years, and >65 years.

Table 2. Number of patients before and during the COVID-19 pandemic based on age (in years)

	Before pandemic						During pandemic					
	<5	5-11	12-25	26-45	46-65	>65	<5	5-11	12-25	26-45	46-65	>65
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Scaling	0(0,0)	6(3,3)	59(3,6)	84(46,4)	24(13,3)	8(4,4)	0(0,0)	1(2,2)	11(24,4)	19(42,)	14(31,1)	0(0,0)
Filling	5(5,5)	26(28,6)	24(26,4)	22(24,2)	12(13,2)	2(2,2)	1(2,2)	3(6,7)	9(20,0)	24(53,3)	7(15,6)	1(2,2)
Extraction	1(0,3)	248(64,1)	25(6,5)	37(9,6)	54(14,0)	22(5,7)	0(0,0)	238(71,5)	6(1,8)	28(8,4)	45(13,5)	16(4,8)

Figure 1 shows that in the first month, the immediate impact was dental filling treatment. In the second and third months, there appeared to be no scaling patients. The number of scaling patients also decreased from a pre-pandemic average of 17.7 and never reached the pre-pandemic average until the 10th month of the pandemic.

A different phenomenon occurs in tooth extraction, where there are still patients every month. Starting in the fourth month, the number of patients approached the average before the pandemic, 39.8 per month (Table 1). It reached above the average in the 9th and 10th.

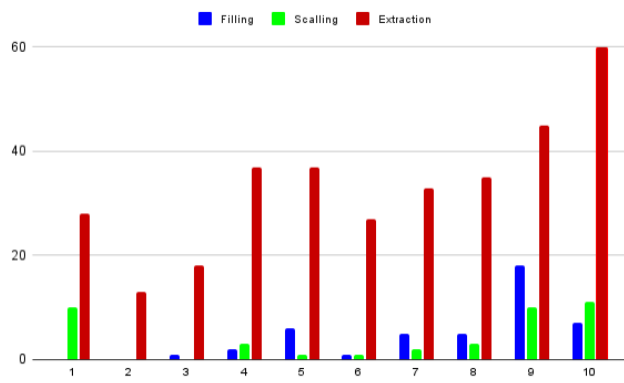


Figure 1. Trends in patient visits during the COVID-19 pandemic

Table 3 shows that scaling patients were not treated with manual scaling services and were dominated by the USS scaling method before the pandemic. In contrast, during the pandemic, scaling services were dominated by the manual scaling method, 31 patients (75.6%). Manual scaling services started in June 2020, the fourth month of the COVID-19 pandemic.

Table 3. Number of scaling patients before and during the COVID-19 pandemic based on scaling method

Month	Before Pandemic		During Pandemic	
	USS	Manual	USS	Manual
	n (%)	n (%)	n (%)	n (%)
1	17 (9,6)	0(0,0)	10 (24,4)	0(0,0)
2	17 (9,6)	0(0,0)	0(0,0)	0(0,0)
3	18 (10,2)	0(0,0)	0(0,0)	0(0,0)
4	22 (12,4)	0(0,0)	0(0,0)	3(7,3)
5	13 (7,3)	0(0,0)	0(0,0)	1(2,4)
6	27 (15,3)	0(0,0)	0(0,0)	1(2,4)
7	15 (8,5)	0(0,0)	0(0,0)	2(4,9)
8	11 (6,2)	0(0,0)	0(0,0)	3(7,3)
9	24 (13,6)	0(0,0)	0(0,0)	10(24,4)
10	13 (7,3)	0(0,0)	0(0,0)	11(26,8)
Total	177 (100)	0(0,0)	10(24,4)	31 (75,6)

DISCUSSIONS

This study highlights the continued provision of dental and oral health services at community health centers during the COVID-19 pandemic. Despite the challenging conditions, there were always tooth extraction patients each month, even during the pandemic's peak. However, there was a significant decline in the number of scaling patients, particularly in the second and third months, with a 76.8% decrease from 177 patients before the pandemic to only 41

during the pandemic. The decline in tooth extraction patients during the pandemic aligns with previous research findings [2]. Additionally, female patients dominated the visits as they were generally more concerned for their health, a trend observed before and after the pandemic [3]. Regarding anesthesia techniques, topical anesthesia remained the most commonly used method, particularly for extracting deciduous teeth, demonstrating that community health centers successfully maintained preventive services following the Indonesian Minister of Health Regulation 43 of 2019.

This study has significant implications for public health, particularly in understanding patient behavior during health crises. In the second month of the pandemic (April 2020), a decrease in tooth extraction procedures was observed due to the lockdown policy implemented by the Indonesian government. This aligns with the Indonesian Dentists Association (PDGI) recommendation to limit dental services except for emergency cases [4]. However, many patients still sought tooth extractions, believing the procedure could not be postponed, whereas scaling treatments were primarily deferred. By the tenth month of the pandemic (December 2020), the number of tooth extraction patients increased again, coinciding with the New Normal policy and improved health protocols. This trend aligns with other studies showing increased patient visits to dental clinics when health protocols were well established [5]. Furthermore, scaling patients were primarily in the 26-45 age group, as individuals within this range typically have better physical conditions, greater health awareness, and are more likely to visit healthcare facilities [6].

From a research perspective, this study provides insights into changes in dental treatment preferences and methods before and during the pandemic. Before the pandemic, scaling services were predominantly performed using the USS method, whereas, during the pandemic, manual scaling became the preferred approach to minimize aerosol production, reducing the risk of SARS-CoV-2 transmission. This finding supports previous research indicating a shift in the dominance of scaling methods due to infection control measures [7,8]. Additionally, before the pandemic, dental filling patients were predominantly children aged 5-11 years, as this age group experiences a transition from milk teeth to permanent teeth and is prone to cavities due to poor oral hygiene habits [9,10]. However, dental visits for children decreased significantly during the pandemic due to concerns about their vulnerability to SARS-CoV-2 and the lack of vaccinations available for children aged 5-11 in the first ten months of the pandemic. Conversely, dental visits among adults aged

26-45 remained high, supported by higher vaccination coverage and increased health awareness [11]. Furthermore, the study revealed that patients utilizing the JKN payment method remained dominant before and during the pandemic, demonstrating the government's success in maintaining healthcare accessibility through JKN implementation [12].

This study has certain limitations that should be acknowledged. The absence of tooth-filling patients in the first two months of the pandemic (March-April 2020) was largely due to dentists and other medical personnel avoiding aerosol-generating procedures. High-speed handpieces used for tooth preparation during dental fillings produce aerosols, posing a high risk of infection for healthcare providers and patients [13,14]. The United States Centers for Disease Control and Prevention (CDC) has categorized aerosol-generating procedures as high risk, significantly reducing dental filling procedures [15]. However, by the fifth (July 2020) and ninth (December 2020) months of the pandemic, dental filling procedures increased as new patient care protocols were introduced and personal protective equipment (PPE) became more available. Given the high public interest in maintaining oral health, it is recommended that relevant agencies ensure the continuous supply of PPE and expand COVID-19 vaccination coverage, particularly for children aged 5-11, to facilitate safer and uninterrupted dental services.

CONCLUSION

During the pandemic, the Tepus II Gunung Kidul Community Health Center continued to provide dental and oral health services, with monthly visits for teeth extraction patients, even during the lockdown policy. The number of patients at the Tepus II Gunung Kidul Community Health Center dental clinic has decreased during the pandemic compared to before the pandemic, with the most significant decrease in scaling treatment. There were no differences in gender dominance and payment systems during and before the pandemic. Females still dominated the patients, and JKN still dominated the payment system. The largest decrease was in the second month of the pandemic (April). However, in the 9th and 10th months, the number of patients had reached, and even exceeded, the average number of patients before the pandemic.

REFERENCES

- Jayaweera, M., Perera, H., Gunawardana, B., Manatunge, J. Transmission of COVID-19 virus by droplets and aerosols: A critical review on the unresolved dichotomy. *Environmental Research*. 2020;Sep;188:109819.
- Tsaqif. Analisis perbandingan jumlah pasien sebelum dan setelah pandemi COVID-19 UPT Puskesmas Tahun 2019-2020. *Jurnal Rekam Medis dan Informasi Kesehatan*. 2021;4(2), pp. 89–96,
- Basith, Z. A. and Prameswari, G. N. Pemanfaatan Pelayanan Kesehatan di Puskesmas. *Higeia Journal of Public Health Research and Development*. 2020;4(1) pp. 52–63.
- Liasari, I., Priyambodo, R. A. and Wahyuni, N. Dampak COVID-19 pada kunjungan pasien di klinik gigi swasta. *Media Kesehatan Gigi: Politeknik Kesehatan Makassar*. 2022;2(1), pp. 11–17.
- Fadillah, F., and Febiana, C. Gambaran data kunjungan pasien poliklinik ke instalasi farmasi RSUD Majalaya selama pandemi. *Menara Medika*. 2021;4(1).
- Nesimnasi, V., Romeo, P., & Ndoen, E. M. Indeks Kepuasan Masyarakat (IKM) terhadap kualitas pelayanan publik di Puskesmas Oepoi Kota Kupang. *Lontar: Journal of Community Health*. 2019.1;4, 147-15.
- Nayoan, G. S., Pangemanan, D. H., & Mintjelungan, C. N. Status kebersihan gigi dan mulut pada nelayan di Kelurahan Bahu Kecamatan Malalayang Kota Manado Sulawesi Utara. *e-GiGi*, 2015;3(2).
- Hasanah, D. Tinjauan literatur: sumber potensial penyebaran SARS-CoV-2 dari lingkungan rumah sakit dan pentingnya pemantauan sanitasi rumah sakit untuk menekan Pandemi COVID-19 di Indonesia. *Majalah Kesehatan*. 2022;9(3), 181-198.
- Abdat, M., & Ramayana, I. Relationship between mother's knowledge and behaviour with oral health status of early childhood. *Padjadjaran Journal of Dentistry*. 2020;32(3):166-173.
- Hizba, F., Filza, A., Tsaqib, H., & Nur, A. Peran orang tua dalam mendukung kesehatan gigi dan mulut anak di masa pandemi COVID-19. 2021. Available from: [Website]
- Rahmayanti, S. N., & Ariguntar, T. Karakteristik Responden dalam penggunaan jaminan kesehatan pada era BPJS di Puskesmas Cisoka Kabupaten Tangerang Januari-Agustus 2015. *Jurnal Medico-eticolegal dan Manajemen Rumah Sakit*. 2017;6(1): 61-65.
- Retnaningsih, H. Prinsip Portabilitas Dalam Program Jaminan Kesehatan Nasional (Studi di Kota Jambi Provinsi Jambi dan Kota Banjarmasin Provinsi Kalimantan Selatan), *Aspirasi: Jurnal Masalah-Masalah Sosial*. 2018;9(2).
- Eden E, Frencken J, Gao S, Horst JA, Innes N., Managing dental caries against the backdrop of

- COVID-19: approaches to reduce aerosol generation. [British Dental Journal](#). 2020;229 (7):411–6.
14. Benzian H, and Niederman R. A dental response to the COVID-19 pandemic—Safer Aerosol-Free Emergent (SAFER) Dentistry. [Front Med](#).2020;7:520.
 15. Centers of Disease Control and Prevention. Guidance for Dental Settings: Coronavirus Disease (COVID-19). (2020;2019):1–12. Available from: [\[Website\]](#)