



A Comparative Study of Out-Patient Department (OPD) Dental Clinic Statistics Before and During the COVID-19 Pandemic in Sri Lanka

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Abstract

Background: The coronavirus disease (COVID-19) pandemic has substantially impacted global healthcare service utilization, including oral healthcare.

Objective: This study aimed to evaluate the variations in outpatient department (OPD) dental clinic utilization across Sri Lanka before and during the COVID-19 pandemic, using pre-pandemic data from 2018-2019 and during the pandemic data from 2020-2021.

Methods: Data were retrospectively extracted from national OPD dental clinic records maintained by the Research and Surveillance Unit of the Institute of Oral Health, Ministry of Health, Sri Lanka. Key variables included basic services provided, patient attendance, and specific demographics, such as pregnant mothers, children under three, and adolescents. Descriptive and inferential analyses were performed using Microsoft Excel and SPSS (v28). The Mann-Whitney U test was used to statistically compare service utilization before and during the pandemic.

Results: The number of patients treated per dental surgeon per month increased from 306 in 2018 to 340 in 2019, then declined significantly to 219 in 2020, and further to 166 in 2021 ($p < 0.05$). Consistent reductions were noted across all treatment categories, except for oral facial pain management, which showed a relatively minor decrease. The detection rates of Oral Potentially Malignant Disorders (OPMDs) per dental surgeon fell sharply from 59 in 2018 to 34 in 2021.

Conclusion: COVID-19 has resulted in a marked decline in public OPD dental service utilization, emphasizing the need for strategic interventions to bridge service gaps, enhance preventive care access, and promote early detection of OPMDs. Enhanced support for vulnerable populations, such as children and pregnant mothers, is recommended along with capacity-building initiatives for dental professionals.

Keywords: Out-Patient Department Care; Oral Health Service; Utilization; COVID-19, Sri Lanka

Background

Sri Lanka, classified as a Low and Middle-Income Country (LMIC), grappling with a major economic crisis, places significant emphasis on the provision of free healthcare as a cornerstone of its governmental policy [1,2]. The responsibility to deliver health services in Sri Lanka is shared between the public and private sectors, with the public sector being the primary provider [3]. Oral healthcare services in Sri Lanka's public sector provide a spectrum ranging from general oral health

provisions to more specialized treatments [4]. General oral health services are delivered by dental surgeons in outpatient dental clinics (OPD). At the same time, more specialized treatments are administered through specialized dental clinics such as oral & maxillofacial clinics, restorative dental clinics, orthodontic clinics, preventive oral health clinics under the supervision of consultant oral & maxillofacial surgeons, consultants in restorative dentistry, consultant orthodontists, and consultants in community dentistry respectively [4].

Within OPD dental clinics, a comprehensive array of basic treatments such as restorations, extractions, scaling, and selected preventive dental treatments such as fluoride applications and fissure sealants are provided. Additionally, certain advanced procedures, such as Root Canal Treatments (RCT), are undertaken to a certain extent [4,5,6].

Upon the recognition of COVID-19 as a disease primarily transmitted through aerosols, it significantly influenced the landscape of oral healthcare services [7,8,9] globally, including Sri Lanka. In alignment with directives from authoritative bodies such as the World Health Organization (WHO) and the Center for Disease Control and Prevention, along with evidence-based international guidelines [9,10,11], Sri Lanka devised its own set of guidelines in collaboration with key stakeholders, namely the Ministry of Health, the Sri Lanka Dental Association, and various dental colleges and associations [12] for oral health services. Within this framework, oral healthcare services were curtailed to focus solely on emergency dental treatments. All hospitals adhered to the triage concept where primary contacts of COVID-19 could be separated [13, 14]. However, specialized preventive oral health units in tertiary care hospitals continue their services to special target groups such as high-risk children and pregnant mothers [15].

The COVID-19 pandemic, alongside associated public health measures such as lockdowns, social distancing guidelines, and restrictions on non-emergency health services, precipitated significant shifts in patient behavior and patterns of health service utilization [16]. Additionally, fear of potential virus transmission in healthcare settings prompts changes in patient attitudes and preferences regarding healthcare-seeking [17,18].

Against this backdrop, understanding the changes in OPD dental clinic statistics is imperative for informing healthcare policies, resource allocation, and future planning. By comparing data from both the pre-pandemic and pandemic periods, it is possible to identify challenges, assess needs, and better prepare for future pandemics. In addition, this analysis offers opportunities to explore ways to enhance dental healthcare delivery in Sri Lanka. Hence, the objective of the present study was to explore, visualize, and compare the changes observed in OPD dental clinics across Sri Lanka, utilizing the OPD dental clinic statistics in the COVID-19 pre-pandemic era (2018 and 2019) and pandemic (2020 and 2021) periods.

Methods

Figure 1- Monthly Return of Hospital OPD Dental Clinic

H 1201(a)
Personal Contact No.

Institute _____ RDHS Division _____ Month & Year _____ Name & SLMC Reg. No. _____

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total
Emergency case	Extractions																															
	Oro-facial pain relief																															
	Dento-alveolar trauma																															
	Soft tissue injuries																															
	Post-op infection bleeding																															
Routine case	TF																															
	Amalgam																															
	GIC																															
	Composite																															
	RCT(Dressings)																															
	RCT(Completions)																															
	Pulp therapy(Deciduous)																															
	Scaling																															
	Fluoride applications																															
	Fissure Sealants																															
	OPMD																															
	Minor Oral Surgery																															
	HE Sessions																															
	Referrals																															
	Others																															
Total attendance																																
Attendance	Pregnant Mothers																															
	Age under 3																															
	Age 13 - 19																															
	Inward patients																															
Number of days worked																																
Comments/ suggestions																																
Signature																																

Figure 1: Monthly return of hospital OPD dental clinic (Form H1201 a)

The Ministry of Health in Sri Lanka has established a manual oral health surveillance system for dental surgeons. A summary of the treatments performed by dental surgeons should be documented daily. These records are subsequently consolidated into a monthly report known as the “Monthly Return of Hospital OPD Dental Clinics” (Figure 1) Basic services provided by OPD dental clinics, such as extractions, orofacial pain relief, dentoalveolar and soft tissue injuries, restorations, preventive treatments such as fluoride gel applications and fissure sealant applications, and screening for Oral Potentially Malignant Disorders (OPMD) were taken as separate variables. Additionally, total attendance and attendance of special groups such as pregnant mothers, children under three years, and adolescents were also taken as variables in this study.

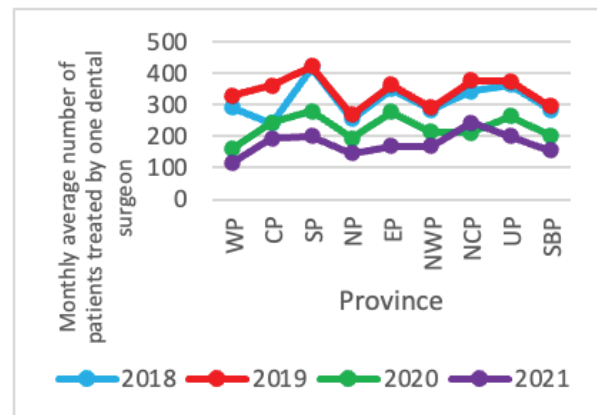
Data analysis was performed using Microsoft Excel and SPSS, version 28. The data for 2018 and 2019 were considered as the pre-pandemic period, while the data for 2020 and 2021 were classified as the during-pandemic period. Since there were variations in attendance to dental clinics during the 12 months of the year, due to various reasons such as the New Year festival, period of Ramazan and Christmas season, etc., the average monthly figures per dental surgeon were used to compare the variables. Descriptive statistics are presented by year and province. The Mann-Whitney U test was used to compare the pre-pandemic period with the pandemic period.

Ethical clearance was obtained from the Ethics Review Committee of the Faculty of Dental Sciences, University of Peradeniya, Sri Lanka (Reference No: ERC/FDS/UOP 2023/21). Administrative approval for conducting the study was obtained from the Research and Surveillance Unit of the Institute of Oral Health, Maharagama, Ministry of Health, Sri Lanka. The routine OPD dental clinic data used in this study did not include identifying information.

Results

From 2018 to 2021, a declining trend in the number of patients treated at public OPD dental clinics was observed. The monthly average number of patients treated by a single dental surgeon increased from 306 in 2018 to 340 in 2019, decreased to 219 in 2020, and further decreased to 166 in 2021. The reduction observed between the pre-pandemic and

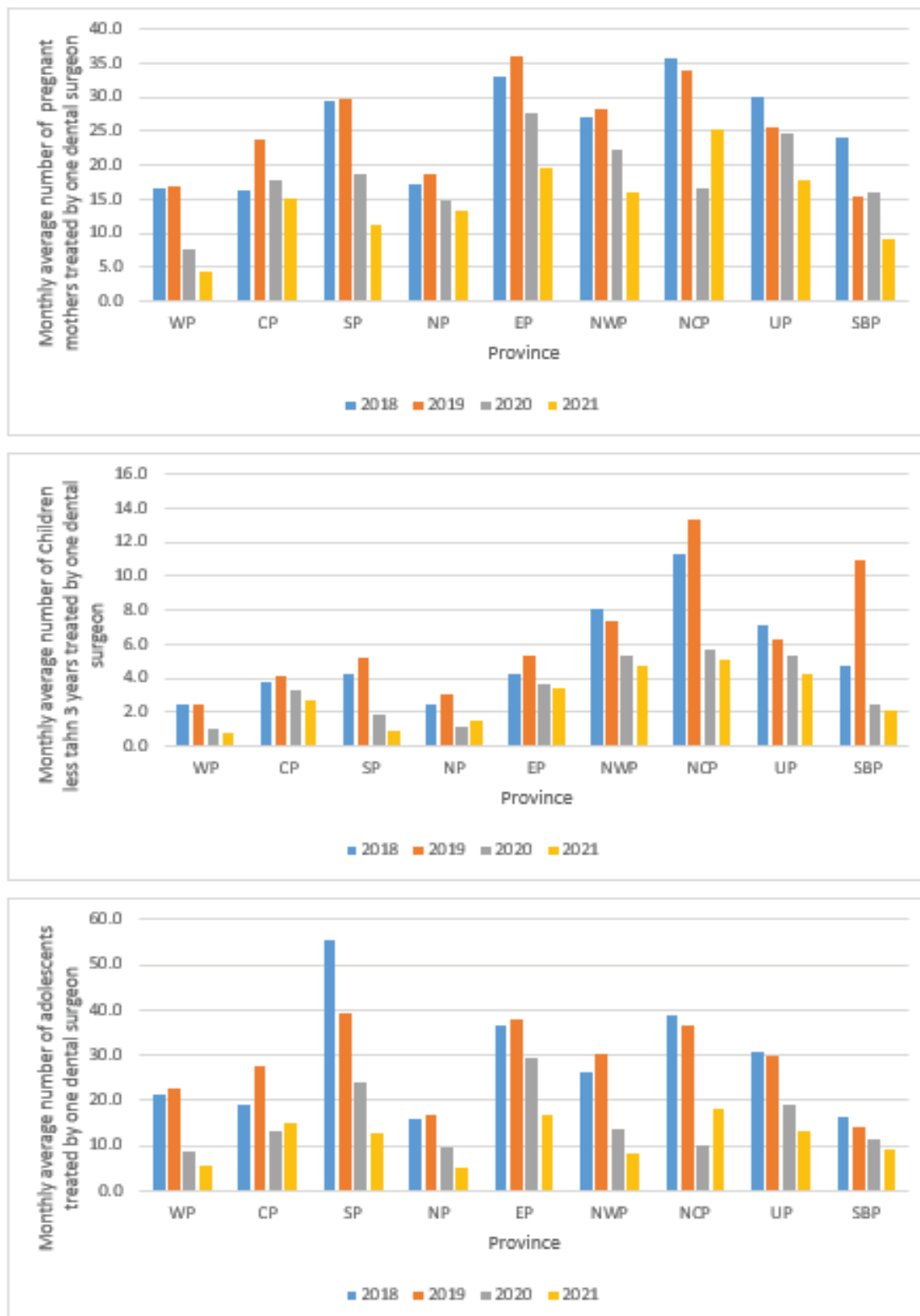
during-pandemic periods was statistically significant ($p < 0.05$), as determined by the Mann-Whitney U test. The provincial variations in this trend are shown in Figure 2. Across all provinces, a consistent pattern was observed: an upward trend from 2018 to 2019, followed by a downward trend from 2019 to 2020, and a continued decrease from 2020 to 2021. However, an exception was noted in North Central Province, where an increase in patient numbers was observed from 2020 to 2021. The monthly average number of patients treated per dental surgeon was the highest in Southern Province in 2018, 2019, and 2020. In 2021, the average number in Southern Province was second only to that of North Central Province. When examining data from the COVID-19 period specifically, Western Province emerged as the lowest-performing province compared to the others.



WP-Western Province, CP-Central Province, SP-Southern Province, NP-Northern Province, EP-Eastern Province, NWP-North-Western Province, NCP-North-central Province, UP-Uva Province, SBP-Sabaragamuwa Province

Figure 2: Number of people treated by one OPD dental surgeon per month- Provincial variation

Figure 3 provides insight into the monthly average number of pregnant mothers, children under 3 years of age, and adolescents aged 13 to 19 years treated at public OPD dental clinics by a dental surgeon. In the periods before the pandemic, the Eastern and North Central Provinces displayed the highest figures for pregnant mothers treated per dental surgeon per month. Throughout the 2020 pandemic, Eastern Province maintained its performance. However, in 2021, the North Central Province had the highest number in this regard. Conversely, the Western Province consistently exhibited lower values for all three groups. The reduction observed from the pre-pandemic period to the during-pandemic period was statistically significant in all three groups ($p < 0.05$).



WP-Western Province, CP-Central Province, SP-Southern Province, NP-Northern Province, EP-Eastern Province, NWP-North-Western Province, NCP-North-central Province, UP-Uva Province, SBP-Sabaragamuwa Province

Figure 3: Number of pregnant mothers, children less than 3 years old, and adolescents aged–13-19 years treated by one OPD dental surgeon per month–provincial variation.

Table 1 illustrates the treatment patterns within OPD dental clinics across the nine provinces. Notably, when analyzing non-aerosol-generating treatments, the numbers indicated that oral facial pain relief, unlike extractions, did not experience a considerable reduction.

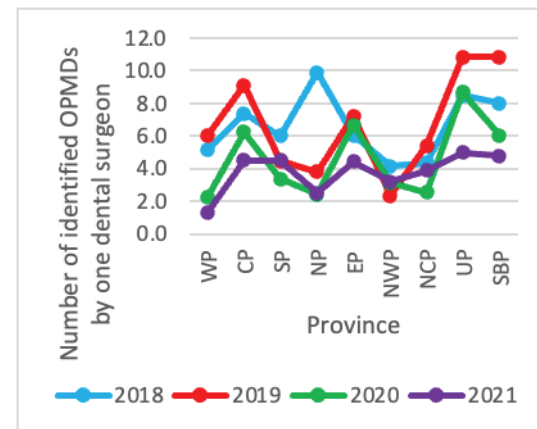
A remarkable upward trend in orofacial pain relief treatments was observed in the Central Province from 2019 to 2021. Conversely, all aerosol-generating procedures, including scaling and restoration, showed a declining trend. Further preventive treatments, such as fluoride varnish/gel applications and fissure sealants, showed a decreasing trend from the pre-pandemic period to the pandemic period. Statistical analysis revealed significant reductions in extractions, temporary restorations, permanent restorations, RCT completion, pulp therapy for deciduous teeth, scaling, and fluoride applications from the pre-pandemic period to the during-pandemic period ($p < 0.05$, Mann-Whitney U Test). However, orofacial pain relief, management of traumatic injuries, and fissure sealants were not significantly different between the two periods ($p > 0.05$).

Figure 4 illustrates the number of OPMDs identified by a dental surgeon throughout the year for all 4 years across all provinces. In the period preceding the pandemic in 2018, the average number of identified OPMDs by an OPD dental surgeon in Sri Lanka was 59. This number experienced a decline, reaching 41 in 2020 and subsequently dropping further to 34 by 2021.

The decline observed from the pre-pandemic period to the pandemic period was statistically significant ($p < 0.05$). Considering the provincial disparities over the four years, the Northern Province exhibited the highest number of reported OPMD cases in 2018, followed by the Uva and Sabaragamuwa Provinces. Conversely, the Northwestern Province reported the fewest number of cases in 2018. In 2019, the Uva and Sabaragamuwa Provinces reported the highest number of OPMD cases, followed by the Central Province, while the Northwestern Province continued to report the lowest, illustrating the pattern from 2018.

Amidst the COVID-19 pandemic, although the identified OPMD cases declined compared to the pre COVID-19 period, Uva Province continued to report the greatest

number of OPMD cases when compared to the other provinces. In contrast, the Western Province reported the fewest cases.



WP-Western Province, CP-Central Province, SP-Southern Province, NP-Northern Province, EP-Eastern Province, NWP-North-Western Province, NCP-North-central Province, UP-Uva Province, SBP-Sabaragamuwa Province

Figure 4: Number of identified OPMDs in OPD dental clinics by one dental surgeon- Provincial variation

Discussion

There are many direct and indirect impacts on the oral health of individuals owing to the COVID-19 pandemic [19]. The COVID-19 pandemic has limited the provision of health and oral health services [20]. During the pandemic, access to services has changed compared to dental service needs, resulting in less utilization of services [16]. However, emergency oral health care services, such as management of oro-dental traumatic injuries and oro-dental infections, remained priorities in public dental services in Sri Lanka, even during the strictly imposed COVID-19 Lockdown.

The results of the present analysis indicate a declining trend in public outpatient oral health service utilization during the COVID-19 pandemic period, which is consistent with other studies conducted in Sri Lanka [21]. Even though the COVID-19 pandemic was successfully controlled in Sri Lanka, there was a further reduction in public outpatient oral health service utilization in 2021 compared to 2020. This reduction was greater in the Western Province, which is the most commercialized province where more COVID-19-infected cases were found. Furthermore, it is important to note that the current study did not analyze data from private-sector dental clinics. Therefore, the observed reduction in OPD dental clinic statistics may

Table 1: Trend in the treatments provided by OPD dental clinics (per dental surgeon per month)

Province year	WP	CP	SP	NP	EP	NWP	NCP	UP	SBP	SL
Extraction										
2018	70.0	76.9	121.1	81.0	121.3	90.7	87.4	85.5	70.7	86.0
2019	81.3	92.7	119.9	75.9	120.3	86.1	101.9	83.9	68.1	90.6
2020	39.4	69.1	83.8	49.7	97.4	68.9	59.5	64.5	49.5	61.8
2021	32.6	58.9	65.4	35.6	59.8	57.3	66.6	49.9	41.0	49.1
Oro-facial pain relief										
2018	38.8	34.6	63.3	57.4	75.4	49.2	60.1	58.1	43.7	49.7
2019	46.0	45.1	59.4	62.1	72.6	45.7	69.9	52.6	49.7	53.3
2020	36.6	48.4	58.8	70.4	85.0	47.3	51.0	56.7	42.3	52.3
2021	25.6	71.1	46.5	55.4	52.4	37.6	60.8	46.8	38.5	45.0
Injuries including dentoalveolar and soft tissues										
2018	1.6	1.2	1.8	2.2	2.2	1.2	1.1	2.3	0.9	1.6
2019	1.8	1.5	2.3	1.6	3.3	1.1	1.3	2.3	1.0	1.8
2020	1.0	1.1	1.3	1.4	3.4	1.0	0.7	1.6	0.9	1.3
2021	0.8	0.8	1.9	1.1	1.4	0.5	1.3	1.2	0.6	1.0
Temporary restorations										
2018	47.0	50.7	79.7	26.8	31.6	49.6	52.5	56.5	51.8	49.6
2019	51.1	66.1	78.3	23.7	32.4	42.6	52.9	53.2	54.0	51.6
2020	23.3	36.2	43.4	11.5	21.2	27.4	27.6	38.1	31.6	28.6
2021	16.5	31.6	26.3	8.4	15.4	21.4	18.4	27.9	21.7	20.6
Permanent restorations										
2018	86.2	77.5	122.5	50.9	62.9	73.8	85.5	101.5	102.1	85.1
2019	95.9	106.3	119.7	50.8	73.0	69.0	99.1	108.1	93.7	91.9
2020	33.1	53.6	54.8	21.2	42.7	36.8	35.0	59.8	48.3	42.2
2021	22.8	42.1	37.3	13.0	30.2	28.5	40.9	47.4	34.3	31.4
R C T (Completions)										
2018	2.1	2.5	4.7	4.5	1.9	2.6	5.0	3.0	3.7	3.0
2019	12.7	2.7	5.2	3.4	2.3	2.5	3.6	3.4	3.8	5.5
2020	0.9	1.4	2.6	0.9	1.4	1.3	2.0	1.7	1.7	1.4
2021	0.6	0.9	1.1	0.3	0.8	0.9	1.0	1.2	0.9	0.8
Pulp Therapy (Deciduous)										
2018	2.3	5.6	3.7	2.1	2.3	3.1	8.9	7.5	4.3	3.9
2019	3.4	8.3	4.7	1.6	3.1	2.8	6.9	9.8	5.3	4.8
2020	1.1	3.9	1.8	0.7	1.8	1.8	1.9	4.3	2.7	2.1
2021	0.5	3.4	1.0	0.3	1.1	1.2	2.4	2.3	1.9	1.4
Scaling										
2018	18.3	16.0	24.3	14.8	18.6	17.8	21.9	32.6	14.1	19.2
2019	21.4	20.8	24.0	16.3	24.4	16.9	22.8	35.7	16.8	21.7
2020	4.6	7.5	7.6	5.6	10.1	5.9	6.7	12.7	5.5	6.9
2021	1.0	2.7	1.8	2.3	5.4	2.4	5.3	5.1	1.5	2.7
Fluoride application										
2018	0.9	1.3	1.1	0.1	0.9	3.2	1.9	2.5	2.1	1.4
2019	1.2	1.7	0.6	0.2	1.4	2.5	2.0	1.1	2.1	1.4
2020	0.3	1.0	0.2	0.3	0.5	1.0	0.5	0.5	0.9	0.6
2021	0.3	0.8	0.2	0.0	0.2	0.8	1.0	0.3	0.4	0.4
Fissure Sealant										
2018	0.5	0.8	1.8	0.1	1.3	0.6	0.2	1.2	1.4	0.8
2019	0.6	3.8	1.2	0.1	1.3	0.6	0.3	0.3	1.9	1.2
2020	0.1	1.4	1.4	0.1	0.7	0.4	0.1	0.5	1.1	0.6
2021	0.0	1.0	0.6	0.0	0.6	0.1	0.2	0.2	1.0	0.4

WP-Western Province, CP-Central Province, SP-Southern Province, NP-Northern Province, EP-Eastern Province, NWP-North-western Province, NCP-North-central Province, UP-Uva Province, SBP-Sabaragamuwa Province

be attributed to the increased utilization of private sector dental clinics. Several factors could contribute to this shift, including persistent fears related to the pandemic, perceptions of cleanliness and safety in the private sector, overcrowding concerns in public-sector facilities, and the availability of more scheduled appointments in private clinics [22]. However, a study conducted among dental surgeons in Sri Lanka found that, during the COVID-19 pandemic, the total patient volume in the private sector dropped to less than 25% of their routine practice (23.2%). Additionally, most respondents reported that their income in the private sector was reduced to less than 25% of what they typically earned under normal conditions [23].

Furthermore, within the Western Province, Colombo District boasts two specialized preventive dental clinics, a service not available in other districts. Consequently, the sustained operation of these facilities throughout the pandemic may have contributed to the lower utilization of outpatient department (OPD) services, particularly among special groups such as pregnant mothers and children [14,15]. Another study conducted in a specialized conservative clinic in Sri Lanka found that the incidence of traumatic injuries reported during the COVID-19 pandemic was higher than that during the prepandemic period. This suggests that patients bypassed OPD clinics, which were limited to emergency management, and sought direct treatment in specialized units. This shift could be another reason for the reduction in OPD dental clinic statistics [24]. Consistent with this finding, another study conducted in specialized oral and maxillofacial clinics at a tertiary care hospital in Sri Lanka reported an increase in the number of injuries reported during the COVID-19 pandemic. This highlights the continuous operation of specialized units throughout the pandemic period [25].

Initially, the reduction was mainly due to the lockdown. All treatments were limited to emergency management protocols. The aerosol-generating procedure was postponed. Thereafter, even in 2021, the reduction in the utilization of oral healthcare services was due to the fear generated among the public that dental clinics were a high-risk area for virus contact [7,14,15,17,18]. Because public health facilities are usually crowded, people may have avoided these crowded places [26].

Lack of awareness of the COVID-19 virus has caused a vast change in health-seeking behaviors. Accessibility to healthcare facilities was also hampered during the pandemic owing to social distancing, which affected the public transport system.

The number of total attendances, including the number of pregnant mothers, adolescents, and children less than three years of age who utilized oral health services during the pandemic period, showed a decreasing trend, which is consistent with other global studies [26,27,28,7] as well as in a specialized unit in a tertiary care hospital in Sri Lanka [15].

Although preventive treatments such as fluoride varnish applications are non-aerosol-generating procedures, they were reduced during the pandemic period. This was supported by further evidence of the performance of a Preventive Oral Health Unit of a premier, multispecialty public dental hospital [14,15]. Further, in agreement with the results of the current study, a study carried out in the United States revealed that the fluoride utilization rates among 1- to 5-year-old children were significantly reduced during the pandemic compared to the pre-pandemic period ($P < 0.05$). However, fluoride applications at medical well-child visits with non-dental primary care providers were also reduced, and the reduction was less than that provided by dentists at the dental office [29]. Provision of oral health advice at medical well-child visits could be a feasible solution as the parents are not willing to take the kids for dental visits due to fear; they visit medical well-child clinics.

In contrast to the current study, a study conducted among pediatric patients in Saudi Arabia has identified that even though patient flow has reduced during the pandemic period, more minimally invasive treatments that minimize air generation were performed [30]. The only oral healthcare provider in the hospital sector in Sri Lanka is a dental surgeon. They are mainly oriented towards curative treatment. Although preventive treatments can be carried out during the pandemic period, since dental surgeons are more curative-oriented, they may not have focused on preventive treatments. There are only two specialized preventive oral health units at the National Dental Hospital (Teaching) and the Institute of Oral Health that

exclusively provide preventive oral health care services. However, this is not sufficient to cater to island-wide preventive oral health care needs. Therefore, preventive treatments should be given more priority in future oral healthcare service planning, even in non-pandemic periods, and accessibility to preventive treatments should be increased. Establishing more preventive oral health units nationwide, strengthening preventive oral health programs and capacity building of dental surgeons in adolescent dental clinics, and community dental clinics for cost-effective, minimally invasive, and comprehensive preventive oral health care provision should be a promising approach in this regard.

The number of patients treated in OPD dental clinics in North Central Province exhibited an upward trend from 2020 to 2021. Despite the pandemic, various organizations, including the Ministry of Health and religious groups, have implemented and reinforced various health-promotion activities to educate and empower the community. For example, mother support groups play a major role in educating and empowering the community [31]. These initiatives have facilitated the dissemination of accurate information, vaccination clinics, contact tracing, and other preventive measures. North Central Province is a rural area with a lower population density, which may have contributed to reduced fear and increased utilization of oral health services following the dissemination of correct information.

Because scaling is a more aerosol-generating procedure, it was not performed frequently during the pandemic period. Therefore, a noteworthy declining trend was reported in the number of scaling procedures performed in 2020 and 2021 when compared to 2019. The recent National Oral Health Survey of Sri Lanka indicated that a substantial proportion of individuals in various age groups present with calculus that requires treatment, ranging from 47% to 71% [32]. Given that calculus was prevalent across all age groups, the marked reduction in scaling procedures during the pandemic may adversely impact the gingival health of the population, with potential ramifications for overall well-being [27]. However, it is rational to argue that if children and adults can be educated and empowered on efficient and effective tooth brushing

and maintaining optimal oral hygiene, the prevalence of calculus can be markedly reduced.

In Sri Lankan OPD dental clinics, OPMD is typically detected opportunistically when individuals seek treatment for other dental issues, and the dental surgeon identifies OPMD during routine oral cavity screening. This approach has significant benefits because identified cases can be managed appropriately, potentially preventing progression to oral cancer (33,34). However, the number of OPMDs identified by dental surgeons has shown a significant decreasing trend in 2020 and 2021 compared with the pre-pandemic period. This reduction in identified OPMDs may have a major impact on the quality of life of affected individuals, as well as on the healthcare system in the future, by potentially increasing the number of oral cancer cases detected at a later stage. Although the identification of OPMD was low in OPD dental settings during the COVID-19 period, a study conducted in specialized oral and maxillofacial surgery clinics showed that they remained consistently active during this time, performing 18 oral cancer surgeries in March 2020 [35]. As OPMD screening is a non-aerosol-generating procedure, it should be prioritized in preparation for future pandemic situations, allowing patients to receive treatments from specialized clinics.

Moreover, a study conducted at the Teaching Dental Hospital Peradeniya, Sri Lanka, on OPMD during the pre-pandemic and pandemic periods suggested that a preventive package should be developed to address the reduced presentation of OPMD patients in clinics. This package should include home-based identification of OPMD, habit interventions to prevent complications, and the option of performing biopsy during the first visit or within the same week. Additionally, regular follow-ups should be conducted via video conferencing or telephone calls if in-person visits are not possible [36].

According to the present trend analysis, most of the treatments provided at OPD dental clinics in Sri Lanka showed a significant reduction in numbers, except for orofacial pain relief and management of injuries that were considered emergency treatments, and there were no restrictions on providing them during the pandemic. In comparison to the number of extractions, the amount

of orofacial pain relief provided before the pandemic was relatively low. However, in 2020 and 2021, the number of extractions decreased, while the number of orofacial pain relief procedures increased. This shows that even though people visited oral healthcare services during the pandemic, only emergency procedures were performed. The long-term impact of this trend on quality of life is a major concern [37,38]. In contrast, a study conducted in Kuwait's AlJahra specialized dental center found that the number of restorative and endodontic procedures performed during the pandemic did not decrease, as these treatments were deemed essential for maintaining individuals' well-being [39].

Changes in the way people seek healthcare and the reduced utilization of oral health services, along with the temporary postponement of oral health educational and promotional activities, are expected to have a significant impact on the oral health of the general population. This could exacerbate existing disparities in oral health, with individuals from more socially disadvantaged backgrounds experiencing greater negative effects [38]. However, specialized preventive oral health units continue their services amidst the COVID-19 pandemic, as evidenced by oral health reports [5,6].

Our findings should be interpreted with caution because of the inherent constraints of the study methodology [40]. One significant limitation of this study was the

inability to analyze patient-level socioeconomic factors owing to the lack of available data in routinely collected monthly records [33]. The present study's findings pertain only to public outpatient dental services and may not reflect the situation in private dental services. Additionally, this study focused solely on oral healthcare services provided in outpatient departments, and the analysis could not be complemented with information from specialized dental clinics. Further, as patient statistics in general demonstrate patient visits rather than patient numbers, our analyses were limited to descriptive statistics.

Conclusion

The COVID-19 pandemic has led to a significant decline in the utilization of public outpatient oral healthcare services in Sri Lanka, highlighting gaps that need to be addressed to ensure population well-being. This reduction, particularly in the early detection of OPMDs, underlines the urgency of comprehensive strategies focused on improving access to preventive care and supporting vulnerable groups such as children and pregnant mothers. Enhancing early OPMD detection and expanding preventive oral health units, along with capacity-building for dental professionals, could bridge these service gaps. Further research, especially involving specialized dental units and private sector data, is essential to fully understand the impact of the pandemic and to inform future healthcare policies.

Author declaration

Author contributions: MD contributed to writing the proposal, obtaining ethical and administrative approvals, conducting data analysis, and writing the report. NKJ contributed to the data analysis and critically reviewed the manuscript. PJ facilitated the administrative approval and provided a thorough review of the articles.

Conflicts of interest: The authors declare no conflict of interest concerning the research, authorship, and/or publication of this article.

Ethics approval and consent to participate: Ethical clearance was obtained from the Ethics Review Committee of the Faculty of Dental Sciences, University of Peradeniya, Sri Lanka (Reference No: ERC/FDS/UOP 2023/21). The routine OPD dental clinic data (secondary data) used in this study did not include identifying information.

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