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Impact of Second Wave of Corona Virus Disease-2019 on Utilisation Pattern of Dental Services in a Dental Teaching Hospital

Dr. Sirjana Dahal,[1] Dr. Deepa Niroula,[2] Dr. Rajiv Yadav,[3] Dr. Prakash Poudel[4]

[1]*Department of Community Dentistry, Maharajgunj Medical Campus, Maharajgunj, Kathmandu, Nepal;*
[2]*Department of Oral Medicine and Radiology, Maharajgunj Medical Campus, Kathmandu, Nepal;*
[3]*Department of Orthodontics and Dentofacial Orthopaedics, Maharajgunj Medical Campus, Maharajgunj, Kathmandu, Nepal;*
[4]*Department of Orthodontics and Dentofacial Orthopaedics, Kathmandu Medical College and Teaching Hospital, Kathmandu, Nepal.*

ABSTRACT

Introduction: COVID-19 brought fear in utilisation of dental services and a critical challenge to dental institutions on how to respond to the dental emergency conditions.

Objective: To assess the impact of second wave of COVID-19 on utilisation patterns of dental services in a dental hospital of Kathmandu.

Methods: Analytical cross-sectional study was conducted among all individuals visiting outpatient department of a dental teaching hospital, Kathmandu during lockdown and were assessed for chief complaint, examined orally and referred to specialty departments according to treatment need. It was then compared with referral done in pre-lockdown period. Data were analysed in SPSS. Frequency, percentage, mean and standard deviation were calculated depending upon the nature of data. Chi-square test was done for determining association between different variables.

Results: During lockdown, majority (67, (28.5%) complained of dental pain, trauma or had hopeless tooth requiring referral to Department of Oral and Maxillofacial Surgery followed by dental problems of endodontic concern (50, 21.3%) with need of referral to Department of Conservative Dentistry and Endodontics. However, during the pre-lockdown period, majority (377, 33.1%) were referred to Department of Conservative Dentistry and Endodontics followed by referral to Department of Oral and Maxillofacial Surgery (275, 24.1%). The proportional difference in referral between two periods were statistically significant (P <0.001).

Conclusion: The study concluded that the second wave of COVID-19 lockdown had impact on utilisation of dental services. Safety protocols including proper infection control measures need to be implemented to reduce the risk of transmission and provide quality oral health services.

Keywords: Corona virus Disease-2019; dental services; impact, Nepal.

INTRODUTION

The novel corona virus was first detected in Wuhan, China in December 2019[1] which then spread rapidly creating an alarming situation worldwide.[2] Many countries are combating through series of waves of Coronavirus disease-2019 (COVID-19).[3] Nepal was reeling from second wave of COVID in early 2021.[4] All non-essential activities were suspended during the lockdown period, both of daily life and in the medical field.[5]

Correspondence

Dr. Deepa Niroula
Email: drdeepa.niroula@iom.edu.np

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In dental care intervention, there is a direct contact between the patient and dentist with proximity to the patients' oropharyngeal region.[6] Also, most of the dental procedures involve production of aerosol and droplets having potential to spread infections across the patient and dental practicioner.[7] Therefore, making a treatment decision is a demanding task for a dental professional, resulting in considerable variation in treatment practices.[8] An efficient and rationalized dental emergency management strategy is required, including the implementation of teleconsultation and triaging.[9]

The fear of COVID-19 among general population due to its novel and rapid transmission is found to be one of the most common barrier to utilisation of dental services.[10,11] This study was aimed to assess the impact of second wave of COVID-19 on utilisation patterns of dental services in a dental teaching hospital of Kathmandu, Nepal.

METHODS

An analytical cross-sectional study was conducted to assess the impact of second wave of COVID-19 pandemic on utilisation of dental services in Tribhuvan University Teaching Hospital, Maharajgunj Medical Campus, Kathmandu, Nepal. Ethical clearance was obtained from Institutional Review Committee of the same institute. In this study, census method was used for selecting the eligible participants where all 235 individuals visiting dental outpatient department as new cases from 29th April 2021 up to one and half months of lockdown period were included.

Informed consent was received from the study participants before data collection. Since all the departments were functioning normally during the lockdown period, patients were considered for referral to respective specialty departments based on their chief complaint and oral examination. Individuals who came in follow-up visits for their ongoing dental treatment, those having symptoms of COVID-19 like fever, cough and cold or diarrhoea; those who have been tested positive to COVID-19 or those in contact with COVID-19 patient within the past three days were excluded.

The referral of the patients during lockdown was then compared with the referral of 1,139 patients done during one and half months just before lockdown.

Data were entered in Microsoft Excel Sheet and analysed in SPSS Statistics for Windows, Version 16.0 (IBM Corp, Armonk, N.Y., USA). For descriptive statistics, frequency and percentage were calculated for categorical variables and mean±standard deviation were calculated for continuous variables. In order to determine the association between age, sex, and the departments referred with COVID-19 lockdown and pre-lockdown period in Dental Teaching Hospital, Maharajgunj, Chi-square test was done.

RESULTS

Total of 235 individuals visited the Dental Teaching Hospital, Maharajgunj during one and half months duration of the second wave of COVID-19 lockdown period for dental check up. However, there were 1,139 individuals (4.85 times more) who visited the same dental teaching hospital just before the lockdown period. In total, 1,374 individuals visited the dental outpatient department (OPD) in the duration of three months including pre-lockdown and lockdown phases.

Out of total individuals who visited the dental OPD during and before lockdown, 613 (44.61%) were males (126, 53.6% during lockdown; 487, 42.8% before lockdown) and 761 (55.39%) were females (109, 46.4% during lockdown; 652, 57.2% before lockdown). Significant proportional difference in sex distribution in between these two periods was seen (P=0.002, Table 1). Most of the individuals visiting dental OPD during lockdown period (64, 27.2%) belonged to age group of 30-44 years whereas majority of those visiting during the pre-lockdown period (386, 33.9%) were from age group of 15-29 years (P=0.002, Table 1).

Most of the individuals (67, 28.5%) who visited dental OPD during lockdown, complaint of oral surgical concern and were referred to the department of Oral and Maxillofacial Surgery followed by dental problems of endodontic concern (50, 21.3%) and were referred to the Department of Conservative Dentistry and Endodontics. However, during the pre-lockdown period, majority (377, 33.1%) were referred to the Department of Conservative Dentistry and Endodontics followed by referral to the department of Oral and Maxillofacial Surgery (275, 24.1%). The proportional difference in referral between these two periods were statistically significant (P<0.001).

Table 1: Demographic characteristics of individuals visiting dental outpatient department.

Characteristics	Category	Lockdown period n (%)	Pre-lockdown period n (%)	P value*
Sex	Male	126 (53.6)	487 (42.8)	0.002
	Female	109 (46.4)	652 (57.2)	
Age group (in years)	≤ 14	23 (9.8)	161 (14.1)	0.002
	15-29	57 (24.3)	386 (33.9)	
	30-44	64 (27.2)	276 (24.2)	
	45-59	54 (23)	37 (15.7)	
	≥ 60	189 (16.6)	127 (11.2)	

*Chi square test

Table 2: Association of departments referred with Corona virus disease-2019 lockdown and pre-lockdown period.

Characteristics	Category	Lockdown period n (%)	Pre-lockdown period n (%)	P value*
Department referred from general OPD depending upon chief complaint	Treated in oral medicine itself	45 (19.1)	37 (3.2)	<0.001
	Conservative dentistry and endodontics	50 (21.3)	377 (33.1)	
	Oral and maxillofacial surgery	68 (28.9)	275 (24.1)	
	Orthodontics and dentofacial orthopaedics	7 (3)	56 (4.9)	
	Pedodontics and preventive dentistry	23 (9.8)	161 (14.1)	
	Periodontics	38 (16.2)	197 (17.3)	
	Prosthodontics	4 (1.7)	36 (3.2)	

*Chi square test

DISCUSSION

COVID-19 which is caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is a very unpredictable disease and has affected globally creating an emergency condition in health systems.[12] Oral health care delivery and utilisation are particularly affected because of the high risk situation due to its route of transmission.[13] This study was conducted during the lockdown period due to the second wave of COVID-19 to assess the impact in utilisation of oral health services and was compared with the utilisation pattern during the pre-lockdown period.

Total of 1,374 individuals visited the Dental Teaching Hospital, Maharajgunj, during three months of pre-lockdown and lockdown period. When the number of individuals visiting dental OPD were compared in two different time frames of same duration (one and half months each), it was found that individuals visiting the Dental Teaching Hospital during pre-lockdown period were 4.85 times more than during the lockdown period. The decrease in flow of patients seems obvious because there was restriction in public transportation facilities announced by the Nepal Government during the lockdown period effective from 6 am, April 29, 2021 as per the Cabinet's decision made in April 26, 2021 in order to prevent transmission of COVID-19 by reducing unnecessary mobilisation of general public.[4] This restriction may have led only the individuals who had emergency oral health conditions to visit the Dental Teaching Hospital, Maharajgunj. However, during the pre-lockdown period, there was free movement and all the individuals who felt the oral health need could visit the dental hospital. Fear of transmission of Corona virus is the other major reason behind the individuals' hesitation in visit to the dental hospital during the lockdown period.[14, 15]

The present study shows that significantly higher number of the males (126, 53.6%) went to the dental OPD for consultation during the lockdown period (P=0.002) whereas most of the females visited the same hospital before lockdown (652, 57.2%). In general, females show higher levels of compliance in comparison to males and they report to have more positive behaviour regarding regular dental visits[16] as seen in the pre-lockdown period in this study. However, the low attendance of females during lockdown can be related to their higher tendency of fear perception and their negative expectations about health related consequences of COVID-19 than men that might have made them reluctant towards dental visit unless any emergency oral health condition prevail.[17] Similar findings are shown by a study done in China by Guo et al. where female attendees were more during the pre-covid phase than in the time of lockdown.[10]

In the current study, out of 235 individuals who physically attended the hospital for dental check-up during one and half month duration of lockdown, only 23 (9.8%) belonged to the age group 0-14 years. However, during the pre-lockdown phase, 161 (14.1%) of those who visited the dental OPD were children. Likewise, comparatively less number of patients reported to a pediatric clinic in a study done by Noy et al. at Israel during lockdown than the pre and post lockdown period.[18] In this study, although, overall flow of patients in the dental hospital was low, the restrictions in child patients attending the dental clinic was higher in comparison to other age group. The possible reasons behind the unwillingness of parents to take the children for dental visit can be the unavailability of vaccines to children against COVID-19 till date. Parents became reluctant to expose their children to crowded spaces due to spiking COVID-19 cases.[19] There is a strong parental concern regarding physical health of their loved ones and they fear of rapid transmission to their children.[20]

Among 235 individuals who presented to the dental OPD during lockdown in the current study, majority (67, 28.5%) were referred to the Department of Oral and Maxillofacial Surgery as their chief complain and diagnosis after clinical

examination and radiographs necessitated referral to that department. Their major findings were pericoronitis due to third molar impaction, space infection, trauma or hopeless tooth. This was followed by the chief complain like dental pain, broken tooth or swelling and had findings of endodontic concern (50, 21.3%) on oral examination. Thus, they were referred to the Department of Conservative Dentistry and Endodontics. Similar findings were reported in a study done by Dixit et al. in Kathmandu, Nepal during the first lockdown due to COVID-19 outbreak where majority of the patients (37.56%) visited the dental hospital for endodontic consultation followed by emergency consultation for oral surgical procedures (20.54%).[21] Also, a study done by Kafle et al. among dentists in five provinces of Nepal revealed that the most common dental emergency faced by them during lockdown period was dental pain followed by swelling and dentomaxillofacial trauma.[22] In this study, during the pre-lockdown phase, majority of the individuals had complains of endodontic concern.

Very few individuals during the lockdown phase in this study (4, 1.7%) had complains of prosthodontic concern like missing teeth or requirement of crown followed by orthodontic concerns (7, 3%) like malaligned teeth as compared to the pre-lockdown phase. Prosthodontic and orthodontic treatment are mostly related to aesthetic concerns of individuals which may not have been felt as urgent need by the patients during lockdown. In agreement to this study, Dixit et al. also reported prosthodontic concern of patients as the least reported condition for their visit to the dental hospital.[21]

This study has some limitations. Only new patients presented in the dental OPD of the teaching hospital have been reported in this study which may have led to underestimation of cases. However, there were many follow-up patients who where not considered in this study like those reporting to different specialty dental departments due to emergency conditions led by their problems like broken orthodontic brackets, fractured crown or other dental appliances, dental pain or swelling in the tooth undergoing treatment and so on.

CONCLUSION

The results of this study concluded that there was impact of second wave of COVID-19 lockdown on utilisation of dental services. Since the effect of COVID-19 is not over yet, safety protocols including proper infection control measures need to be implemented to reduce the risk of transmission and provide quality oral health services.

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