

Original Research

Spectrums of oral health diseases during covid-19 pandemic

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ABSTRACT:

Aim: Purpose of the present study was to evaluate the spectrum of oral health diseases in Covid-19 pandemic.

Methodology: The descriptive cross-sectional study was conducted via available retrospective data in various Department of Dentistry of lockdown period in KIST Medical College and Teaching Hospital, Imadole, Nepal. The study period was August 2021 to December 2021 and was approved by Institutional Review Committee Approval with registration number 2078/79/59. Convenient sampling technique was followed. Participants with the cases of infection, trauma and with symptoms of pain were more than the patients who had come for routine check-ups. **Results:** Before the pandemic, patients were far more likely to opt for conservative treatment, whereas in the pandemic more common surgical procedures eliminated this superiority—according to the Wilcoxon test, for comparison of filled and extracted teeth, *p*-values were 0.002 and 0.308, respectively, before and during the pandemic. **Conclusion:** The COVID-19 Pandemic has undoubtedly affected the spectrum of dental procedures performed, especially in its acute phase. The quantity of emergency and more invasive surgical procedures has significantly increased.

Keywords: COVID-19; Pandemics; Lockdown; Dental Departments, Emergency Procedures

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INTRODUCTION

Oral diseases are considered a major burden on scarce resources, especially from a public health perspective, due to their impact on pain, discomfort, and compromised quality of life.^{1,2} Treatment for oral conditions are generally unaffordable and universal health coverage remains a challenge in most parts of the world. Even in high income countries, oral health related care amounts to almost 5% of the total health expenditure and 20% out-of-pocket health expenditure.³ The COVID-19 pandemic has sharply brought into focus the need to re-examine oral health systems given that virtually every aspect of healthcare delivery has been impacted by the

outbreak including oral health care delivery. It can be argued that COVID-19 has completely altered the care landscape with not only new challenges and threats, but also new opportunities. Likewise dentistry and oral care delivery should not be left behind as the entire health delivery systems morphs and evolves along with the times. The emergence of new variants in COVID-19 has made the disease far more transmissible, thereby placing a greater strain on the health system.⁴ At the same time, diet and obesity are linked to acquisitions of unhealthy lifestyle practices that are deeply rooted in social and economic circumstances⁵⁻⁷, that could limit the selection of healthier choices. These determinants

could thus impact on oral health status as well.⁸ concurrently, access to oral care for people afflicted with COVID-19 disease could be compromised due to ongoing restrictions in social movement during state imposed lockdowns. Another consequence of the COVID-19 outbreak is related to the warnings regarding the risk of receiving dental treatment during this period. During dental treatment, increased spread of aerosols while drilling and scaling, as well as the physical proximity between the dentists and their patients and between patients in the waiting room, may increase the risk of being infected by the virus.⁹ As a result, the Centres for Disease Control and Prevention and several other health authorities around the world instructed dental staff members to treat only emergency cases during the COVID-19 pandemic and recommended the public to postpone nonessential dental treatments and periodic examinations.¹⁰ Adhering to these warnings and fearing being infected, many people may have postponed their dental appointments.¹¹ An additional issue in regard to the lockdown and staying at home to prevent spreading the disease is increase in emotional stress,¹² which concomitantly could have been expressed orally via temporomandibular disorders (TMDs) or recurrent aphthous stomatitis (RAS). TMD affects the function of the temporomandibular joint along with the muscles of mastication. It can be provoked by emotional depression, stress, anxiety, oral parafunction, and even reduced sleep quality.¹³ Moreover, patients with TMD are affected more commonly by anxiety and depression.¹⁴ This disorder can affect 5% through 12% of the population, including children. The COVID-19 is pandemic and affecting most of the health professionals and their practice. The knowledge and practice are key things to prevent the transmission of infection from the health professionals. The aerosol generating procedure are also varies among various disciplines of Dentistry. The health care workers in aerosol generating departments are highly vulnerable to infection and cross contamination. These workers should have adequate knowledge and standard practice. Due to lockdown, there is difficulty in hospital accessibility and various authorities and hospital advised patients not to visit the hospital unless and until there is an emergency. Most of the time Dentistry is elective based treatment except in conditions like pain, infection, and Oral and Maxillofacial cases. The study was intended to evaluate the Spectrums, demographics of oral health diseases and treatment provided during COVID-19 pandemics specifically during lockdown.

AIM OF THE PRESENT STUDY

To assess the Spectrums of oral health diseases during COVID-19 pandemics and to know about demographics about oral health diseases presented in

various departments of Dentistry during COVID-19 pandemics lockdown.

METHODOLOGY

A Cross sectional descriptive study was conducted amongst 425 patients who visited to various departments of Dentistry in KIST Medical College and Teaching Hospital, Imadole, Nepal, during covid-19 pandemic lockdown period from March 2021 to December 2021. Convenient sampling was conducted for the participants in the present study. Retrospective data from departmental patient's record was collected which was entered in a Microsoft excel sheet. Informed consent was obtained from the patients. Institutional review board approval was taken with ref. no. 2078/79/59. Participants with the cases of infection, trauma and with symptoms of pain were more than the patients who had come for routine check-ups. Selected procedures in Dentistry, both in children and adults, were analysed in detail. The number of these individual services was standardized against the sum of all procedures in a given month. Comparisons were made between performed services in the pre-pandemic period and the pandemic period using the Mann-Whitney test, as well as the proportion of conservative and surgical procedures in the respective periods using the Wilcoxon test. The significance level was set at $\alpha = 0.05$. All analyses were performed using SPSS 25.0.

RESULTS

Total of 425 patients 183 (43%) were male and 242 (57%) were females. 329(77.41%) were new patients and 96 (22.58%) were the follow up cases. Age ranges from 2-85 years. Majority of patients were in between 25-61 years followed by 13-25 years. No patients were there of age below 1 years. Among various departments of Dentistry 220 (51.76 %) of patients were from department of Oral and Maxillofacial Surgery, followed by Conservative and Endodontics, Orthodontics, Pedodontics, Oral Medicine, Prosthodontics and Periodontics. Majority of OMFS patients were of space infection, extraction, abscess, swelling, pericoronitis, TMJ dislocation but surprisingly there were less number of trauma patients. Majority of patients of Orthodontics department were of follow up case. In term of diagnosis and symptoms 169 (39.76%) of patients of pulpitis had under gone extraction, 74(17.41%) were of infection. (Table 4). During the COVID-19 pandemic, the number of conservative procedures such as commercial restorations or filled canals has significantly decreased, while the number of surgical procedures has increased. There is a clear excess of surgical over conservative procedures in the spring of 2021 when the second wave of the COVID-19 pandemic took place in most countries. Before the pandemic, patients were far more likely to opt for conservative treatment, whereas in the pandemic more common surgical procedures eliminated this

superiority—according to the Wilcoxon test, for comparison of filled and extracted teeth, *p*-values

were 0.002 and 0.308, respectively, before and during the pandemic.

Table 1-Demographic Gender

| Sex | Number | Percentage |
|--------|--------|------------|
| Male | 183 | 43 |
| Female | 242 | 57 |

Age group: 2 – 85 years

| Age Group | Number | Percentage |
|----------------------|--------|------------|
| Infant(<1 year) | 0 | 0 |
| Childhood (1-13 yrs) | 70 | 16.47 |
| Youth(13-25 yrs) | 105 | 24.70 |
| Maturity (25-61 yrs) | 208 | 48.94 |
| Senile (61+ yrs) | 42 | 9.88 |

Patients Category: New or follow up

| Patients | No | Percentage |
|-----------|-----|------------|
| New | 329 | 77.41 |
| Follow up | 96 | 22.58 |

Table 2- Medians and quartiles for standardized numbers of selected procedures performed during the COVID-19 pandemic lockdown

| Procedure | Median | p- value |
|--|---------------------|----------|
| Extraction of teeth | 0.064 (0.061–0.077) | <0.001 |
| Screening and pain management | 0.172 (0.160–0.188) | 0.840 |
| Medicinal management | 0.004 (0.002–0.004) | 0.341 |
| Screening and biopsy | 0.038 (0.019–0.043) | 0.141 |
| Incision and drainage | 0.002 (0.002–0.003) | 0.002 |
| Recementation of temporary crown | 0.098 (0.067–0.110) | 0.026 |
| Screening and adjustment of wire | 0.005 (0.003–0.007) | 0.194 |
| Counselling and follow up | 0.018 (0.016–0.022) | 0.260 |
| Pain management and follow up | 0.010 (0.009–0.011) | 0.078 |
| Screening and iopar | 0.044 (0.039–0.050) | 0.977 |
| Screening analgesic and antibiotic therapy | 0.029 (0.027–0.034) | 0.002 |
| Ao and bmp (pedodontic) | 0.011 (0.010–0.011) | 0.089 |
| Cd repair | 0.105 (0.070–0.123) | 0.507 |
| Suture and dressing | 0.005 (0.003–0.007) | 0.194 |
| Bmp | 0.004 (0.002–0.005) | <0.001 |
| Pulpectomy, indirect pulp capping | 0.020 (0.017–0.022) | 0.312 |

Table 3-Number of patient addressed by different Department

| Department | No of patients | Percentage |
|--|----------------|------------|
| Oral and Maxillofacial Surgery | 220 | 51.76 |
| Oral Medicine and radiology | 15 | 3.52 |
| Orthodontics and Dentofacial Orthopedics | 52 | 12.23 |
| Conservative and Endodontics | 75 | 17.64 |
| Pedodontics and Preventive Dentistry | 33 | 7.76 |
| Periodontics | 10 | 2.35 |
| Prosthodontics | 12 | 2.82 |
| Inter-department | 8 | 1.88 |

Table 4-Common presentation and Diagnosis

| Diagnosis | No | Percentage |
|----------------------|-----|------------|
| Pulpitis | 169 | 39.76 |
| Deep dentinal caries | 20 | 4.70 |
| Infectious lesion | 74 | 17.41 |

| | | |
|------------------------|----|------|
| Mucosal lesion | 18 | 4.23 |
| Gingivitis | 11 | 2.58 |
| Periodontitis | 18 | 4.23 |
| Dislodged restoraton | 8 | 1.88 |
| Fractured tooth | 12 | 2.82 |
| Fixed ortho | 24 | 5.64 |
| Trauma from ortho wire | 9 | 2.11 |
| Follow up cases | 26 | 6.11 |
| FU prostho | 14 | 3.29 |
| Miscellaneous | 22 | 5.17 |

DISCUSSION

The COVID-19 pandemic has taken a considerable toll on the health and well-being of doctors and other health professionals, often testing their professional competence to the limits.¹⁵ However, maintaining the quality of dental services at a certain level influences patient satisfaction.¹⁶ When analyzing dental patient satisfaction, the most important factors are competence and courtesy during the dental office visit, which are based on the interpersonal contact between the medical team and the patient. Patients, when assessing their satisfaction with the provided dental services, pay particular attention to the quality of the procedure. Spicciarelli et al. suggested a multilevel evaluation (including oral, systemic, and psychological criteria) to manage dental emergencies following the COVID-19 pandemic. In addition to the epidemiological history, the following medical factors determining the need for urgent dental intervention should be considered during telephone triage: presence/absence of pain (and type of pain, if present), presence/absence of swelling (and localization and characteristics of swelling, if present), presence/absence of bleeding, as well as systemic diseases or medications and psychiatric or neurological disorders.¹⁷ Ayub and Alani, citing the NHS England guidelines, listed life-threatening emergencies (e.g., orofacial swellings causing airway restriction or breathing/swallowing difficulties), dento-alveolar trauma (including facial/oral laceration and/or dento-alveolar injuries such as fractures and luxations), severe dental or facial pain which cannot be controlled by the patient following self-help advice, as well as post-extraction bleeding which cannot be controlled by the patient with local measures as being among the conditions requiring urgent dental treatment. Suspected or positive SARS-CoV-2 patients should be admitted in special dental emergency centers.¹⁸ In emergency cases, pharmacological therapy should be considered first, and if this was not possible, dental treatment should be implemented, but in a manner limiting aerosol formation and thus the risk of contagion. Moreover, adequate time should be allowed between visits to ensure effective decontamination of the surgery.¹⁹ At that time, dental societies recommended the chemomechanical cleaning of carious lesions with hand instruments instead of rotary ones. Similarly, for periodontal treatment, manual scaling should have

been used instead of ultrasonic. In cases of symptomatic irreversible pulpitis, biological methods such as pulpotomy or pulpectomy should have been used by choice if possible. On the other hand, in patients with extensive destruction of tooth tissue and suffering a severe toothache, it was necessary to opt for extraction of the causative tooth in order to reduce the risk of infection, shorten the treatment time, and minimize repeat visits.²⁰ Majority of patients were visited to dental departments with complain of pain, swelling, ulceration, dislodged restoration, soft tissues injuries by orthodontic appliances. Due to restriction in aerosol generation majority of patients were pain managed by closed tooth extraction which generated less aerosol; those teeth can be saved but unavailability of RCT, further progression of diseases and urgent pain relief under gone teeth extraction. Oral and Maxillofacial Surgery were involved in active management of dental emergency as the department does similar illness treatment before also, all the reported emergencies were related to OMFS departments. OMFS department is also considered as emergency department of Dentistry. There were less trauma patient that may be due to less RTA due to lockdown, but few trauma cases were reported which were of physical assault, fall injuries. Few case of TMJ dislocation, fracture tooth, oral bleeding were also reported. A re-organization of oral health systems with a focus on social orientation of oral health self-care, could see improved oral health gains in the long term. No or less oral prophylaxis leading more caries and less restoration and endodontic treatment due to risk of virus transmission via aerosol generating procedure which landed on more extraction of teeth which could be saved. Concurrently, the role of oral health care workers and their preparedness for a public health emergency like covid-19 pandemic should be reviewed and addressed through appropriate training platforms.

CONCLUSION

The quantity of emergency and more invasive surgical procedures has significantly increased, while planned conservative procedures have decreased. In subsequent months, the reduced number of patients was compensated by a higher number of procedures performed per visit.

CONFLICT OF INTEREST

None

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