

Pattern of Dental Problems among Patients Visiting a Dental Hospital during COVID-19 Pandemic

Dixit PB,¹ Dixit S,² Dahal S,³ Poudel P,⁴ Roy D,¹ Manandhar N⁵

¹Department of Conservative Dentistry and Endodontics,

²Department of Prosthodontics,

³Department of Community and Public Health Dentistry,

⁴Department of Orthodontics and Dentofacial Orthopaedics,

⁵Department of Community Medicine,

Kathmandu Medical College and Teaching Hospital,

Duwakot, Bhaktapur, Nepal.

Corresponding Author

Punam Basnet Dixit

Department of Conservative Dentistry and Endodontics,

Kathmandu Medical College and Teaching Hospital,

Duwakot, Bhaktapur, Nepal.

E-mail: punambdixit@gmail.com

Citation

Dixit PB, Dixit S, Dahal S, Poudel P, Roy D, Manandhar N. Pattern of Dental Problems among Patients Visiting a Dental Hospital during COVID-19 Pandemic. *Kathmandu Univ Med J.* 2020;COVID-19 Special Issue 70(2):58-61.

ABSTRACT

Background

Coronavirus disease 2019 (COVID-19) is caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and Nepal is a part of this worldwide coronavirus disease. In this critical situation, the patients have a sense of insecurity visiting dental hospital.

Objective

To assess the pattern of dental problems in patients visiting a dental college during COVID-19.

Method

A descriptive cross-sectional study was conducted in Dental Hospital of Kathmandu Medical College and Teaching Hospital from May to August 2020. The patients visiting the Dental hospital were assessed for dental problems. Data were analyzed in Statistical Package of Social Sciences version 20. Frequency and percentage for pattern of dental problems were calculated.

Result

Most of the patients of age group of 14 to 31 years 530 (36.53%) had dental problems during the survey period. Out of total patients having dental emergency, 739 (50.93%) were males and 712 (49.07%) were females. Majority 545 (37.56%) visited the dental hospital for endodontic consultation followed by emergency consultation for oral surgical procedures 298 (20.54%). Least consulted dental emergency condition was prosthodontic consultation 18 (1.24%).

Conclusion

The study findings showed that the major dental problems in patients causing emergency visit to dental hospital during COVID-19 pandemic period were dental pain and swelling requiring endodontic consultation and the least need felt is prosthodontic consultation.

KEY WORDS

COVID-19, Dental problems, Pattern

INTRODUCTION

The World Health Organization (WHO) declared a public health emergency of international concern due to COVID-19 outbreak.¹ COVID-19 is caused by infection of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).² There is continuous attention in research regarding its transmission route and treatment outcome. Till now, transmission through contact and droplets have been proved. However, its airborne transmission has not been ruled out.³ Many dental procedures produce aerosols and droplets that are contaminated with bacteria, viruses, and blood, and have the potential to spread infections to dental personnel and other people in the dental office.⁴ Dental environment typically involves high level of microbes due to close contact of dental personnel with patient's oral cavity.⁵ Also, there is presence of bacteria and viruses in the aerosols created by dental instrumentation.⁶ In the present threatful situation, many dental practitioners' independently decided to suspend activity due to the concern of an elevated risk of both contracting and transmitting COVID-19 based on the nature of their work and limited themselves to providing emergency dental services only.⁷ In this pandemic period, COVID-19 has created threat among general people because of its novel and rapid transmission. It has made people reluctant to visit public places including medical and dental hospitals.⁸ Therefore, this study was conducted to assess the pattern of dental problem in patients visiting a dental college during COVID-19 pandemic period.

METHODS

A descriptive cross-sectional study was conducted in Dental Hospital of Kathmandu Medical College and

Teaching Hospital from May to August 2020 after obtaining ethical approval from Institutional Review Committee of Kathmandu Medical College. The patients visiting the Dental hospital in both the branches, Sinamangal and Duwakot were assessed for dental problems after receiving their informed consent. Census method was used to select the participants visiting the dental hospital during four months study period.

Since all the dental departments were closed during lockdown period, patients were only received in Department of Oral medicine and Radiology for emergency dental services. In the same department, patients were classified as reporting to different departments based on their chief complain of pain, swelling, bleeding gums, trauma and other conditions followed by examination for oral problems. They were also categorized according to age, gender and month of dental visit.

Data collected were entered in Microsoft Excel Sheet and analyzed in Statistical Package of Social Sciences version 20. Frequency and percentage for pattern of dental problems were calculated.

RESULTS

When surveyed for four months from May to August 2020, total patients visiting Kathmandu Medical College (KMC) dental hospital for emergency treatment in Sinamangal were 1086 and in Duwakot were 365 individuals. The demographic profile of study participants is presented in table 1.

Out of total patients suffering from dental emergency, 739 (50.93%) were males and 712 (49.07%) were females. Most

Table 1. Demographic profile of study participants.

Age group (in years)	Sinamangal			Duwakot			Total (Sinamangal + Duwakot)		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
1-13	84 (15.14)	96 (18.08)	180 (16.57)	40 (21.74)	41 (22.65)	81 (22.19)	124 (16.78)	137 (19.24)	261 (17.99)
14-31	196 (35.32)	204 (38.42)	400 (36.83)	58 (31.52)	72 (39.78)	130 (35.62)	254 (34.37)	276 (38.76)	530 (36.53)
31-50	139 (25.04)	145 (27.30)	284 (26.15)	50 (27.17)	38 (20.99)	88 (24.11)	189 (25.58)	183 (25.71)	372 (25.64)
51 +	136 (24.50)	86 (16.20)	222 (20.45)	36 (19.57)	30 (16.58)	66 (18.08)	172 (23.27)	116 (16.29)	288 (19.84)
Total	555 (100)	531 (100)	1086 (100)	184 (100)	181 (100)	365 (100)	739 (100)	712 (100)	1451 (100)

Table 2. Pattern of dental problems among patients visiting dental hospital.

Month	Dental caries/ restorative	Dental pain/ swelling/ swelling/	Bleeding gums /periodontal problems	Orthodontic consultation/ orthodontic pain	Trauma/ pain/ swelling /Emer- gency in oral surgery	Dental Pain/ swelling in chil- dren/ pedodontic emergency	Prosth odontic emergency	Total
May	36	180	38	24	92	8	3	381 (26.26)
June	32	166	25	55	68	18	4	368 (25.35)
July	49	97	25	72	50	21	6	320 (22.05)
August	54	102	29	83	88	21	5	382 (26.34)
Total	171 (11.78)	545 (37.56)	117 (8.06)	234 (16.13)	298 (20.54)	68 (4.69)	18 (1.24)	1451 (100)

of them, 530 (36.53%) belonged to age group of 14 to 31 years. Majority of the patients 545 (37.56%) visited the dental hospital because they suffered from dental pain or swelling and asked for endodontic consultation followed by emergency consultation for oral surgical procedures 298 (20.54%). Least consulted dental emergency condition was prosthodontic consultation 18 (1.24%) (Table 2).

DISCUSSION

The novel coronavirus was first identified in Wuhan, China in December 2019 and the disease developed was later named as Coronavirus disease.⁹ It has an estimated incubation period of one to 14 days having clinical symptoms like fever and dry cough or some nonspecific symptoms such as shortness of breath, conjunctivitis, sore throat, diarrhea, vomiting, fatigue, and muscular pain.^{10,11} There are severe complications of COVID-19 like respiratory distress syndrome, arrhythmia, and shock.^{10,12} COVID-19 has shown a violent and fast spread worldwide.¹³ There is a high risk of contamination in dental environment because most of the dental procedures involve the exposure to saliva, blood, and production of aerosol or droplets.⁶ This study was conducted to assess the number of individuals visiting dental Hospital of Kathmandu Medical College and determine the emergency dental problems that led them visit the hospital.

Most of the patients 1086 (74.85%) visited Sinamangal KMC during the study period than Duwakot 365 (25.15%). However, during the same months in 2019, more patients visited dental hospital of KMC both in Duwakot (7063) and Sinamangal (3748). The reason behind rapid decline in patients visiting dental hospital is their fear of risk to COVID-19. Also, Duwakot dental hospital received only emergency patients for dental consultation in Department of Oral Medicine and Radiology. Other departments were closed and other departmental actions were done only in single department to minimize cross-contamination due to dental activities. Proper infection control measures like use of personal protective equipment (PPE), disinfection of house-keeping surfaces, proper sterilization of instruments and fumigation were done. Guidance for dental setting has been provided by Centers for Disease Control and Prevention based on the urgency of the pandemic.¹⁴ However, there is no evidence that aerosols generated from dental care lead to transmission of SARS-CoV-2. There are several questions that need to be addressed for developing

and refining future guidance to infection control measures in dental setting.¹⁵

In this survey, majority of study participants were observed to suffer from dental pain and swelling 545 (37.56%) causing dental emergency and visited dental hospital for endodontic consultation. Similar findings were shown in a study done by Kafle et al. where most common dental emergency sought by the dentists of Nepal during COVID-19 pandemic were dental pain and swelling.¹⁶ In London, the urgent dental care center was established during COVID-19 pandemic period providing treatment for emergency conditions like life threatening spreading head and neck infection of dento-facial origin, trauma, swelling, post-extraction bleeding, infection, pain, fractured teeth with pulpal exposure and other oral conditions likely to exacerbate systemic medical conditions.¹⁷

Most of the patients 530 (36.53%) of age group 14-31 years suffered from dental emergency and presented themselves to hospital for consultation and treatment during COVID-19 pandemic. Only few children of age group one to 13 years 261 (17.99%) and older people of age group 51 years and above 288 (19.84%) visited dental hospital during the study period. The disparity in visiting pattern could result because the severity and outcome of COVID-19 largely depends upon patient's age.¹⁸ People of these age group at this time would mostly be concerned for life threatening disease than oral problems that is less threatening unless it becomes unbearable.

The study has some limitations. In this study, pattern of emergency dental problems were seen in patients visiting two branches of a single dental hospital only. Therefore, the findings cannot be generalized to all the dental hospitals of Nepal.

CONCLUSION

The study findings showed that the major dental problems in patients causing emergency visit to dental hospital during COVID-19 pandemic period are dental pain and swelling requiring endodontic consultation and the least need felt is prosthodontic consultation. Further studies are needed to assess the dental problems mostly felt by the general public during COVID-19 pandemic and proper management techniques with proper infection control measures be practiced in the dental hospitals of Nepal.

REFERENCES

1. Mahase E. China coronavirus: WHO declares international emergency as death toll exceeds 200. *Br Med J*. 2020 Jan 31;368:m408. doi: <https://doi.org/10.1136/bmj.m408>
2. World Health Organization. Naming the Coronavirus Disease (COVID-19) and the Virus that causes it. 2019. Available from: [https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/naming-the-coronavirus-disease-\(covid-2019\)-and-the-virus-that-causes-it](https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/naming-the-coronavirus-disease-(covid-2019)-and-the-virus-that-causes-it) Assessed on 27th September 2020.
3. Li Q, Guan X, Wu P, Wang W, Zhou L, Tong Y, et al. Early Transmission dynamics in Wuhan, China, of novel coronavirus infected pneumonia. *N Engl J Med*. 2020 Mar 26;382(13):1199-1207.
4. Harrel SK, Molinari J. Aerosols and splatter in dentistry: a brief review of the literature and infection control implications. *J Am Dent Assoc*. 2004;135(4):429-37.
5. Checchi L, Montevicchi M, Violante F, Raimondo D, Legnani P, Checchi V. Management rules for a dental practice: biological risk and safety at work. *Dental Cadmos*. 2012 Mar;80(3):140-156.

6. Peng X, Xu X, Li Y, Cheng L, Zhou X, Ren B. Transmission routes of 2019-nCoV and controls in dental practice. *Int J Oral Sci.* 2020 Mar 3;12(1):9-14.
7. Grossman S, Sandhu P, Sproat C, Patel V. Provision of dental services at a single institution in the UK's epicentre during the COVID-19 pandemic. *Br Dent J.* 2020 Jun;228(12):964-70.
8. Guo H, Zhou Y, Liu X, Tan J. The impact of the COVID-19 epidemic on the utilization of emergency dental services. *J Dent Sci.* 2020 Mar 16.
9. Lu R, Zhao X, Li J, Niu P, Yang B, Wu H, et al. Genomic characterization and epidemiology of 2019 novel coronavirus: implications for virus origins and receptor binding. *Lancet.* 2020;395(10224):565–74.
10. Chen N, Zhou M, Dong X, Qu J, Gong F, Han Y, et al. Epidemiological and clinical characteristics of 99 cases of 2019 novel coronavirus pneumonia in Wuhan, China: a descriptive study. *Lancet.* 2020;395(10223):507–13.
11. Guan WJ, Ni ZY, Hu Y, Liang WH, Ou CQ, He JX, et al. China Medical Treatment Expert Group for COVID-19. Clinical characteristics of coronavirus disease 2019 in China. *N Engl J Med.* 2020;382:1708-1720.
12. Huang C, Wang Y, Li X, Ren L, Zhao J, Hu Y, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *Lancet.* 2020;395(10223):497–506.
13. Izzetti R, Nisi M, Gabriele M, Graziani F. COVID-19 transmission in dental practice: brief review of preventive measures in Italy. *J Dent Res.* 2020 Aug;99(9):1030-38.
14. Centers for Disease Control and Prevention. Guidance for Dental Settings. 2020 Aug 28. Available from: <https://www.cdc.gov/coronavirus/2019-ncov/hcp/dental-settings.html> . Assessed on 28th September 2020.
15. Epstein JB, Chow K, Mathias R. Dental procedure aerosols and COVID-19. *Lancet Infect Dis.* 2020 Aug 10; S1473-3099(20)30636-8.
16. Kafle D, Mishra RK. Incidence and pattern of dental emergencies and their management during Covid-19 pandemic: An experience of Nepali dentists working during lock down. *Orthod J Nepal.* 2020 Sep 11;10(2):14-9.
17. Pajpani M, Patel K, Bendkowski A, Stenhouse P. Rapid response: activity from a hospital based Urgent Dental Care Centre during the COVID-19 pandemic. *Br J Oral Maxillofac Surg.* 2020 Jul 9; S0266-4356(20)30326-0. [in Press]
18. Mueller AL, McNamara MS, Sinclair DA. Why does COVID-19 disproportionately affect older people? *Aging.* 2020 May 29;12(10):9959-81.