

Impact of Covid-19 Pandemic on Caries Prevalence among Pediatric Population

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Introduction

- The World Health Organization (WHO) declared Coronavirus Disease 2019 (COVID-19) as a pandemic in March 2020⁽¹⁾.
- COVID-19 pandemic had a significant impact on the healthcare system, particularly dental treatment⁽²⁾.
- Extra precautions were recommended to stop COVID-19 from spreading due to the potential of bidirectional spread of infection between patients and dental care professionals.⁽²⁾
- Thus, the Covid-19 pandemic led to the closure and reduced hours of dental procedures except for emergency and urgent services.⁽³⁾
- Subsequently, routine dental care and prevention were restricted.⁽²⁾

Objectives

This study aimed to evaluate the effect of COVID-19 pandemic on the Decayed, Missing, and Filled Teeth (DMFT/dmft) scores among pediatric dental patients at Tufts University School of Dental Medicine.

Materials and Methods

Study design and participants:

- This retrospective chart review study included patients with age range 0–18-year-old who visited the clinic for comprehensive exam 1-year pre-shutdown and 1-year post-shutdown at Tufts University School of Dental Medicine (TUSDM).

Materials and Methods

Data collection and variables:

- The Electronic Health Records (axiUm) were reviewed to collect a convenience sample of 1323 to measure the DMFT/dmft scores.
- Data collected included demographics, patient's health status, DMFT/dmft scores, insurance type and time of dental visit (pre/post COVID-19).
- Socioeconomic status (SES) defined based on the insurance type; patients with private or dual insurance considered having high SES while patients with governmental insurance considered having low SES.

Statistical analysis:

- Data analysis was performed using Stata 17.
- Descriptive statistics were calculated as counts and percentages for all categorical data, mean and standard deviation for the continuous data.
- Mann-Whitney U test was used to compare between before and after clinic shutdown period. The Kruskal-Wallis and Dunn's test with the Bonferroni correction was used for post-hoc tests.
- P-values less than 0.05 considered statistically significant.

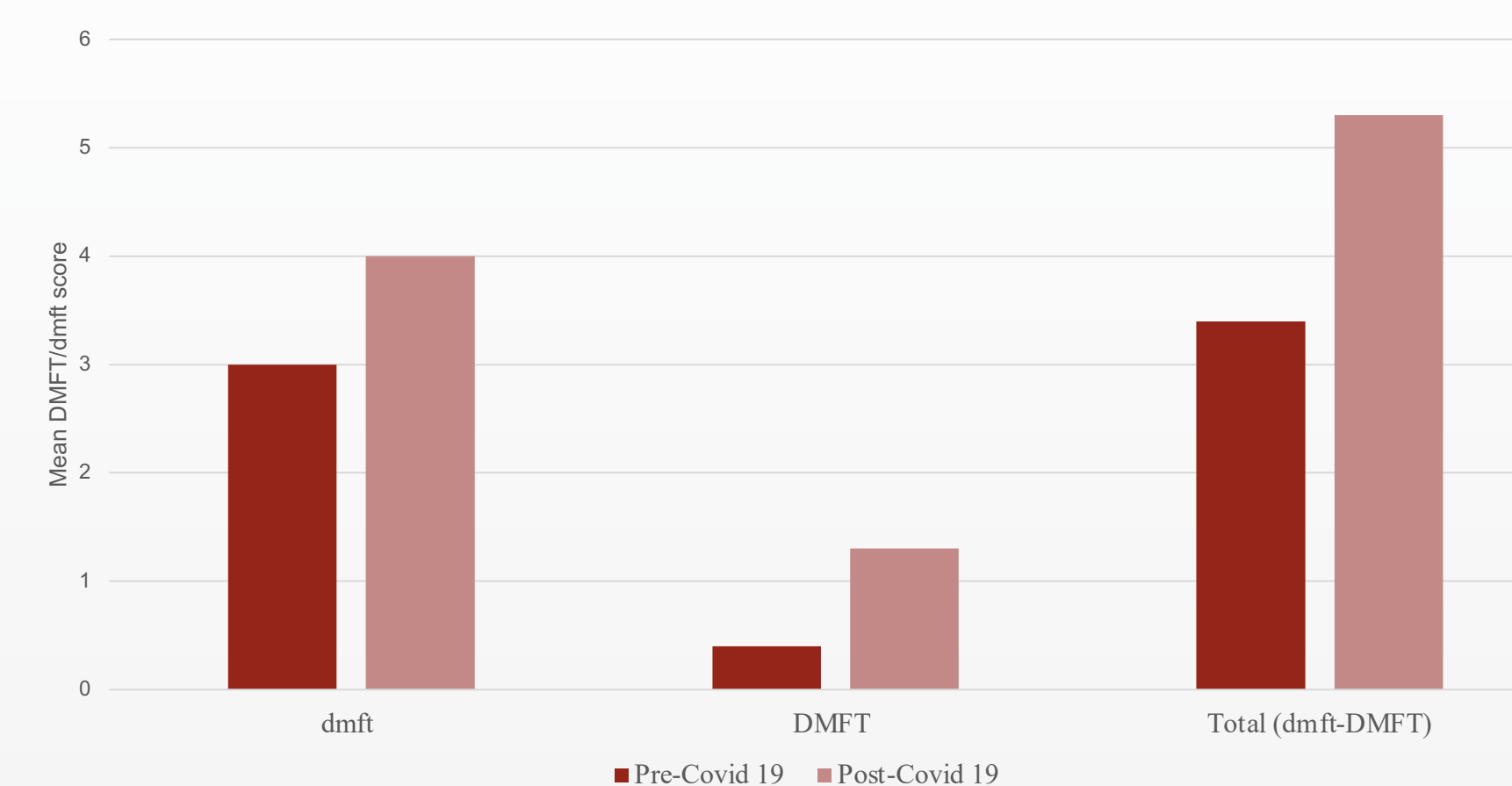
Results

Table 1. Distribution of sociodemographic variables of the study population

Variables	N (%) N= 1323
Gender	
Male	706 (53)
Female	617 (47)
Location	
Clinic	1019 (77)
Operation Room (OR)	304 (23)
Exam Date	
Before Covid-19	710 (54)
After Covid-19	613 (46)
Socioeconomic Status (SES)	
Low SES	1036 (80)
High SES	260 (20)
Health Status	
Healthy	1176 (88)
Medically Compromised	156 (12)

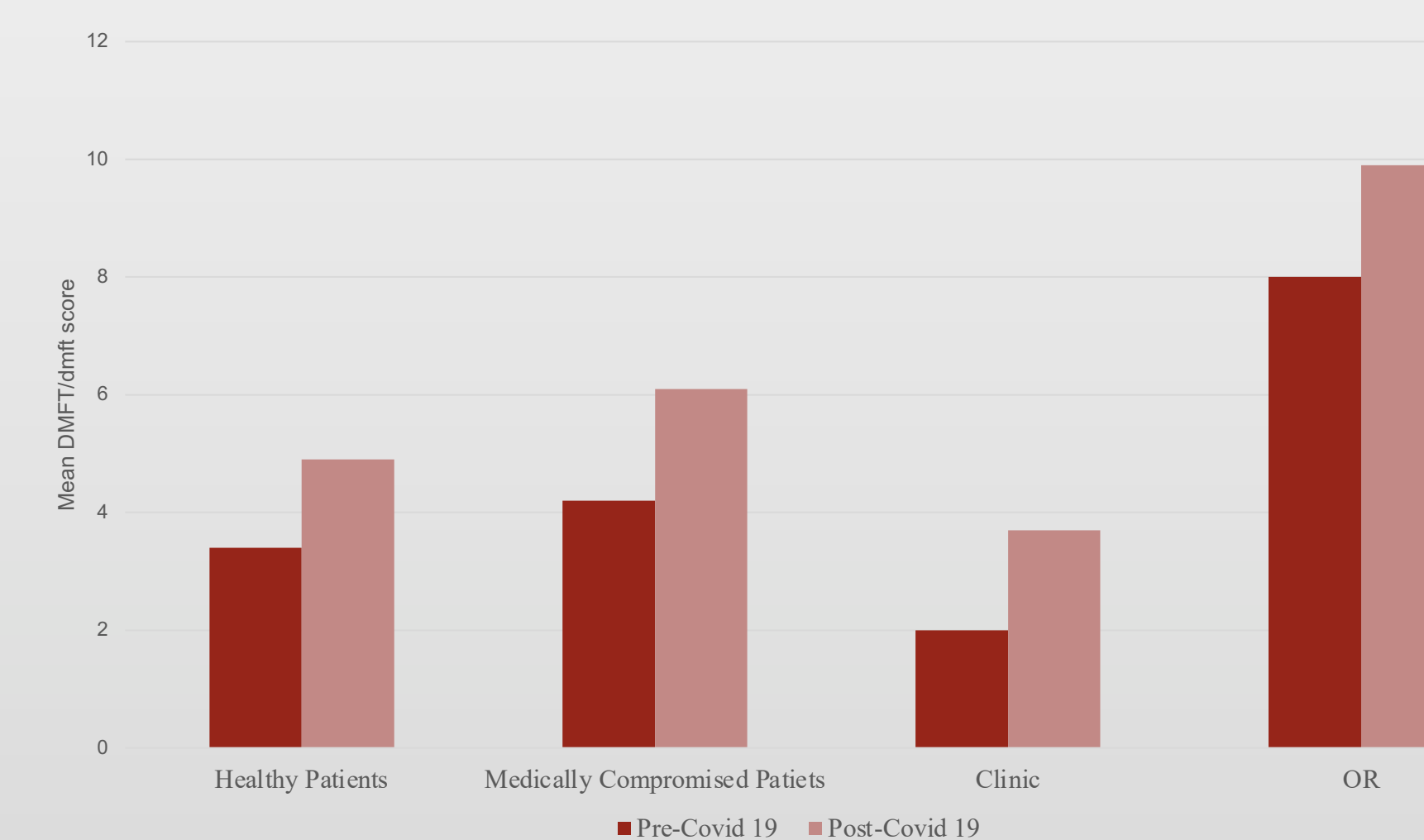
Results

Figure 1. Effect of COVID-19 on the total DMFT/dmft scores



- COVID-19 lockdown increased the caries experience (DMFT/dmft Scores) significantly ($p < 0.001$).

Figure 2. Effect of COVID-19 on the caries experience among patients in different dental locations and health status.



- The needs for full dental rehabilitation under General Anesthesia increased significantly after COVID-19 lockdown.
- After the COVID-19 pandemic, patients with medical health conditions had higher caries experience than healthy patients ($p < 0.03$).

Results

Table 2. Participants status before and after Covid-19 lockdown.

	Pre-Covid 19			Post-Covid 19			p-Value
	Mean (SD)	Median	IQR	Mean (SD)	Median	IQR	
dmft (Primary Teeth)	3 (3.8)	0	6	4 (4.5)	1	8	$p < 0.008$
DMFT (Permanent Teeth)	0.4 (1.1)	0	0	1.3 (2.6)	0	2	$p < 0.001$
Healthy	3.4 (3.7)	2	6	4.9 (4.4)	4	7	$p < 0.001$
Medically Compromised	4.2 (3.6)	4	7	6.1 (5)	5	9	$p < 0.02$
Clinic	2 (2.6)	1	4	3.7 (3.8)	3	7	$p < 0.001$
OR	8 (3.3)	8	4	9.9 (3.7)	10	4	$p < 0.001$

- Interestingly, there was no significant differences between DMFT/dmft scores of patients with low SES and high SES before the lockdown.
- However, after the pandemic, patients with high SES had lower caries experience compared to low SES ($p < 0.007$).

Conclusion

- In conclusion, the findings of this study demonstrate the negative effects of the COVID-19 lockdown on caries experience.
- Establishing preventive teledentistry visits should be considered to improve the oral hygiene practices, in which parents and their children can be guided about how to maintain oral health by taking healthy diet and improving brushing habits.

References

