Effect of COVID-19 Pandemic in Pediatric Emergency Care in Puerto Rico

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Introduction

In March 2023, the WHO reported that globally, 2 billion people suffer from permanent teeth caries, with 514 million children affected by primary teeth caries. Unattended cavities can lead to various complications, and the pandemic has seen an increase in pediatric emergency room visits for dental issues like infections, pain, abscesses, and cellulitis. The COVID-19 pandemic has further impacted these figures causing significantly disrupted social interactions and access to medical and dental services globally. This surge is attributed to factors such as pandemic-induced dental visit apprehensions, policy changes, limited dental services, and a reduction in practicing pediatric dentists, particularly in Puerto Rico, where the pandemic lockdown initiated in March 2020 led to the suspension of routine dental treatments, with only a limited number of dental emergencies addressed.

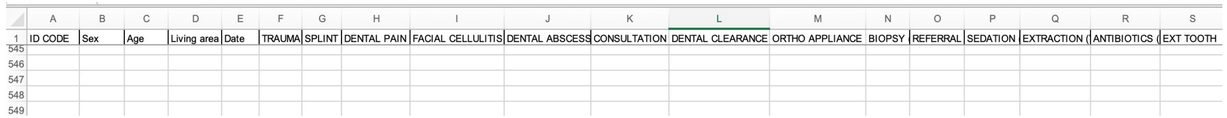
Comparative analyses highlight the pandemic's impact on pediatric dental care. One study revealed a decline in emergency room visits for oral complaints in 2020 compared to 2019, with stomatitis and traumatic injuries being prevalent. They found that oral infections and painful caries constituted nearly 15% of all cases in both years.[3] Another investigation observed reduced dental emergencies during the pandemic but a heightened prevalence of infections, with dental abscesses and caries penetrating into the pulp being predominant diagnoses for these emergency dental visits. This study demonstrated a decreased number of dental emergency visits compared to previous years, alongside a notable prevalence of dental infections.[2] Similarly, a study conducted during a seven-week lockdown in 2020 reported a 45% increase in emergency dental treatments compared to 2019, with gingivitis and irreversible pulpitis being the most common complaints.[1] Numerous investigations underscore the imperative necessity for interventions aimed at ameliorating accessibility to pediatric dental care, particularly amidst the compounding challenges exacerbated by the COVID-19 pandemic. Considering the substantial ramifications of the pandemic on oral health services and the escalation of pediatric dental emergencies, our study conducted in Puerto Rico holds promise for furnishing valuable insights into efficacious healthcare strategies.

Objectives

- The retrospective study is designed to examine data from the Emergency Room Register and progress notes at the Pediatric University of Puerto Rico Hospital Dr. Antonio Ortiz. It aims to explore dental emergencies by comparing three distinct periods: before, during, and after the pandemic.
- The primary goal is to determine the leading causes of emergency dental visits in the pediatric population, including issues like caries, infections, pain, abscesses, and cellulitis. Additionally, the study seeks to evaluate changes in the volume of patients during these times.

Material and Methods

- Data will be gathered from Meditech Records (Electronic Hospital Patient Records) progress notes from pediatric emergency room cases related to dental services across three distinct COVID-19 periods:
  - Pre-pandemic (March 14, 2018 - March 14, 2020)
  - During the pandemic (March 15, 2020 - March 14, 2022)
  - Post-pandemic (March 15, 2022 - March 15, 2024).
- Information obtained from EHR will be passed to an Excel Sheet and categorized into:



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	ID CODE	Sex	Age	Living area	Date	TRAUMA	SPLINT	DENTAL PAIN	FACIAL CELLULITIS	DENTAL ABSCESS	CONSULTATION	DENTAL CLEARANCE	ORTHO APPLIANCE	BIOPSY	REFERRAL	SEDATION	EXTRACTION (	ANTIBIOTICS (	EXT TOOTH
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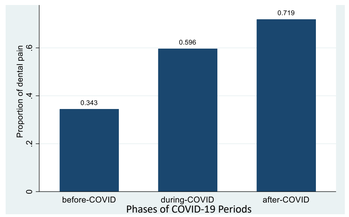
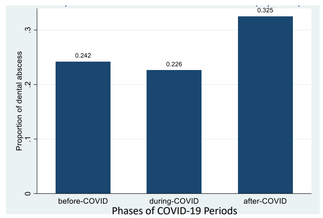
Results

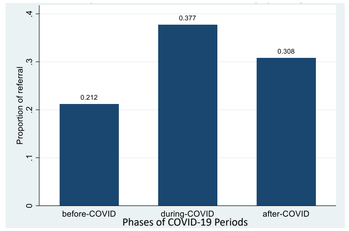
Graphic 1: Proportion of Dental Pain over COVID-19 Phases



Graphic 2: Proportion of Dental Abscess over COVID-19 Phases



Graphic 3: Proportion of Referral over COVID-19 Phases



Graphic 4: Proportion of Consultation over COVID-19 Phases

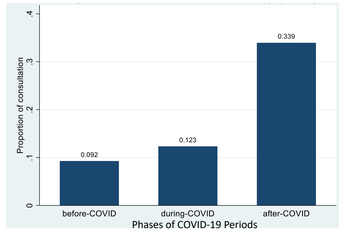


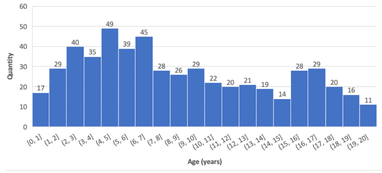
Table 1: Data from all ER visits over each COVID-19 periods

	Before	During	After
Patients	533	514	***643***
Trauma	151	153	***158***
Pain	183	305	***462***
Abscess	129	116	***209***
Facial Cellulitis	50	58	***88***
Consultation	49	63	***218***
Clearance	***43***	19	17
Referral	113	186	***198***
Sedation	214	206	***264***
Extraction	265	259	***354***
Antibiotics	***105***	99	103

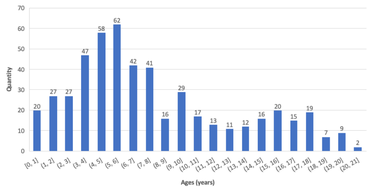
Table 2: Sex distribution over all COVID-19 periods

	Male	Female
Total (1,690)	986	704

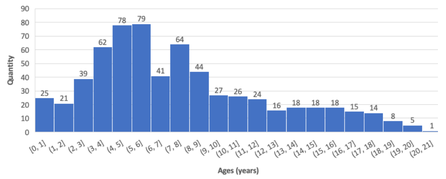
Graphic 5: Age Distribution in Before COVID-19 Period



Graphic 6: Age Distribution in During COVID-19 Period



Graphic 7: Age Distribution in After COVID-19 Period



Conclusions

Our study, which rigorously compiled and scrutinized electronic records across distinct time frames, elucidated a considerable cohort of pediatric patients encountering diverse dental emergencies, predominantly comprised of males. Notably, a significant surge in emergency room visits transpired in 2023. Traumatic incidents constituted a minor fraction of cases, whereas dental pain, dental abscesses, and dental consultations exhibited greater prevalence.

Moreover, our analysis disclosed a substantial uptick in patients seeking emergency dental care attributable to dental pain, alongside an escalation in dental abscess incidence during the post-COVID-19 period. This observation intimates a plausible impact of the COVID-19 pandemic on pediatric oral health. Additionally, the augmented rates of dental consultations and referrals after the COVID-19 era further substantiate this conjecture.

Fundamentally, our hypothesized correlation between the COVID-19 pandemic and pediatric oral health was substantiated by statistically significant findings. The heightened occurrence of dental emergencies, particularly concerning pain and abscesses, underscores the imperative for ongoing vigilance and intervention to mitigate potential oral health ramifications during and beyond global health crises like COVID-19. Further investigations are warranted to elucidate the underlying determinants of these trends, including the demand for pediatric dentists in Puerto Rico, and to devise targeted strategies aimed at ameliorating adverse oral health outcomes among pediatric populations.

References

Acknowledgments

- Cheryl Paulo, DMD, MDSc
- Emilio Agrait, DMD
- Kai Guo, PhD, MS
- Lydia Lopez, DMD, MPH
- Ricardo J. Ramírez Alameda, DSIV
- Andrea S. Rodríguez Rolón, DSIV
- Belmarí Méndez Santiago, DSIV
- Nicole M. Isidor Pagán, DSIII