ASSESSING KNOWLEDGE OF CLEFT LIP AND PALATE AMONG DENTAL STUDENTS

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INTRODUCTION

Oral diseases represent the most common diseases with significant socioeconomic impact. The major oral diseases that constitute without any doubt a serious global burden is dental caries, periodontal diseases, edentulism, cancer, and cleft lip and/or palate anomaly[1].

Orofacial clefts (OFC), cleft lip (CL), cleft lip and palate (CLP) and cleft palate (CP) are among the most common congenital anomalies, the most severe congenital anomalies of the orofacial region, requiring long and challenging multidisciplinary treatment. [2]

Combined birth prevalence of orofacial clefts (OFC) has been estimated to be 17/10,000 live births. There are 7.3 million individuals with OFC in the world today.[1]

OBJECTIVE

Dental professionals are critical members of multidisciplinary teams and their knowledge of understanding etiology of OFC[2,3,4] is very important for treatment planning, intervention, and outcome, and ultimately for their prevention.[1,5,6] This study aims to assess the baseline knowledge of cleft lip and palate among dental students and orthodontic residents at the University of Pacific Arthur A. Dugoni School of Dentistry.

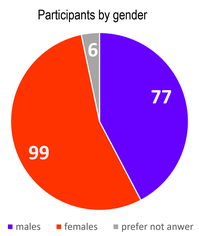
MATERIAL AND METHOD

Qualtrics, an online survey platform was used for this study and with introductory email sent to students and orthodontic residents, and later also to faculty and staff . The survey comprises 20 questions. The first 3 questions of the survey obtained information regarding the participant' demographic information, class they belonged to, age, and gender. The remainder of the questions assessed the participants' knowledge regarding the etiology, prevalence, and prevention of the OFC and other congenital anomalies (IRB 2024-65). The survey was conducted from March 19 to April 11, 2024. Altogether 132 students and residents, and 50 faculty and staff participated in the survey (Table 1, Figure 1). The collected data was coded and analyzed using Microsoft Excel Analysis Tool pack.

Table 1. Sample characteristics

Category	Gender						Total	
	males		females		NS*			
	n	%	n	%	n	%	n	%
DDS2024	13	56.52	10	43.48	0	0	23	100.00
DDS2025	10	45.45	21	95.45	1	4.55	32	100.00
DDS2026	21	42	27	54	2	4	50	100.00
Total DDS	**44**	**41.9**	**58**	**55.24**	**3**	**2.86**	**105**	**100.00**
IDS2024	2	33.33	4	66.67	0	0	6	100.00
IDS2025	4	50	4	50	0	0	8	100.00
Total IDS	**6**	**42.86**	**8**	**57.14**	**0**	**0**	**14**	**100.00**
Ortho2024	3	75	1	25	0	0	4	100.00
Ortho2025	5	55.56	2	22.22	2	22.22	9	100.00
Total Ortho	**8**	**66.67**	**2**	**16.67**	**2**	**16.67**	**12**	**100.00**
Total all students and residents	**58**	**43.94**	**69**	**52.27**	**5**	**3.79**	**132**	**100.00**
Faculty	**16**	**48.48**	**17**	**51.52**	**0**	**0**	**33**	**100.00**
Staff	**3**	**17.65**	**13**	**76.47**	**1**	**5.88**	**17**	**100.00**
TOTAL ALL	**77**	**42.31**	**99**	**54.4**	**6**	**3.3**	**182**	**100.00**

*prefer not answer



RESULTS

- **Etiology of nonsyndromic cleft lip and palate (NSCLP)**

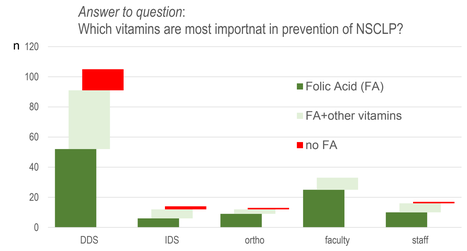
Our findings indicate very good knowledge of the etiology of nonsyndromic cleft lip and palate among our students, residents, and faculty and staff. All orthodontic residents, 78% of DDS students, and 57% of the IDS students, 73% of faculty and 88% of staff answered correctly as *"genetics and environmental factors"* (Table 2.). There was no significant difference between knowledge about etiology of clefts between males and females (x^2=0.634, p=0.43).

Table 2. Etiology of non-syndromic cleft lip and palate

Category	genetic + environmental		genetic		environmetal		Total	
	n	%	n	%	n	%	n	%
DDS	82	78.10	21	20.00	2	1.90	105	100.00
IDS	8	57.14	3	21.43	3	21.43	14	100.00
Ortho residents	13	100.00	0	0.00	0	0.00	13	100.00
Faculty	24	72.73	5	15.15	4	12.12	33	100.00
Staff	15	88.24	2	11.76	0	0.00	17	100.00
TOTAL	**142**	78.02	**31**	17.03	**9**	4.95	**182**	**100.00**

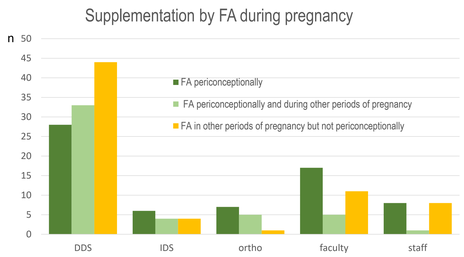
- **Role of Folic Acid in prevention of NSCLP**

We were also pleased with the excellent knowledge of the importance of Folic Acid (FA) in the prevention of OFC. All Pacific faculty and 87% of DDS students selected FA alone or with other vitamins (Figure 2). And same as about knowledge of etiology there was no difference between male and female respondents about preventive effect of FA.



- **When supplementation by FA should be administered**

Knowledge about the timing of supplementation with FA to prevent nonsyndromic cleft lip and palate – covering periconceptional period (before conception and 1st trimester of pregnancy) - was very good for ortho residents (92.3%) and faculty (66.7%), but not so good for dental (58.1%) and IDS (52.9%) students (Figure 3).



- **Can we prevent nonsyndromic cleft lip and palate?**

The best knowledge about prevention of nonsyndromic cleft lip and palate showed our faculty – 33.3% answered that NSCLP are preventable, a similar number answered, "*I don't know*" and 18.2% *"Maybe".*

Lastly, 33.5% of the DDS students did not know if CL and CLP can be prevented, while most of the IDS students (42.86%) reported "*Maybe*" . However, 46.15% of the orthodontics residents reported that CL and CLP can be prevented while another 46.15% of the responses from orthodontics residents reported "Maybe".

- **Which other birth defects can be prevented?**

When the participants were asked *"Do you know any other birth defects that can be prevented?",* most common answers were *'fetal alcohol syndrome'* and '*spina bifida and neural tube defects'*. However, most of the DDS and IDS students did not know any preventable birth defects (48.80% and 50 % respectively).

CONCLUSIONS

While the birth prevalence of OFC has not changed for decades, not only treatment modalities but also our understanding of the etiology of cleft lip and palate has changed dramatically. Thus, understanding genetics and etiological factors involved in etiology will help not only for better diagnostics and treatment plans but will also create a necessary background for efficient programs toward cleft prevention (www.cleftprevention.org).

ACKNOWLEDGEMENT

We would like to express our gratitude to Drs. Marie M. Tolarova and Miroslav Tolar for invaluable guidance and support throughout the research process, to Sandra Derian for her help with Qualtrics, and to the participants who volunteered their time and efforts for this study.

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OKU Sutro Excellence Day Project Cover Sheet

Project Title

Assessing Knowledge of Cleft Lip and Palate Among Dental Students at the University of Pacific Arthur A. Dugoni School of Dentistry

Full name(s) and class year(s) of all project collaborators

Example: Jane Smith, DDS 2022; John Smith, DDS 2022

Niki Panahi Zadeh, DDS2026; Simin Charkhzarrin, Visiting Research Scholar; Miroslav Tolar, MD, PhD; Marie M. Tolarova, MD, PhD, Dr.Sc.

Project Category

DDS/IDS/DH - Research Awards

Enter your abstract text here (max 300 words)

Objectives: Orofacial clefts (OFC) are among the most common congenital anomalies, the most severe congenital anomalies of the orofacial region, requiring long and challenging multidisciplinary treatment. There is no doubt that all dental providers meet in their practice patients with OFC. Their knowledge, skills and experience are reflected in treatment outcomes.
Methods: We created an anonymous Qualtrics survey to assess the basic knowledge about OFC among Arthur A. Dugoni School of Dentistry students and orthodontic residents. It consists of 20 questions, including etiology, prevalence, and prevention of clefts and other congenital anomalies. The study continues and so far results are available from 145 respondents.
Results: Our findings indicate very good knowledge of etiology of non-syndromic cleft lip and palate. All orthodontic residents and 78% of DDS students answered correctly as “ genetics and environmental factors ”. Also, we were pleased with an excellent knowledge of the importance of Folic Acid (FA) in prevention of OFC (88% of DDS students and all orthodontic residents selected FA alone or with other vitamins). However, responses to the timing of supplementation (periconceptional) were correct only in 35% of dental students and half of ortho residents.
Conclusions: While the birth prevalence has not changed for decades, not only treatment modalities, but also our understanding of etiology of cleft lip and palate has changed dramatically. Thus, understanding genetics and etiological factors involved in etiology will help not only for better diagnostics and treatment plans but will also create necessary background for efficient programs toward cleft prevention.
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