

Title of Project: Facilitators and Barriers to Providing Orthodontic Care for Patients with Cleft and Craniofacial Anomalies in the State of Illinois

Type of Award: RAA

Principal Investigator: Maysaa Oubaidin

Funding Period: July 2020 to June 2022

Introduction: Orthodontist plays a pivotal role in the continuum of cleft and craniofacial care. To date, there are no studies that have assessed the barriers and facilitators to rendering orthodontic care to those with cleft and craniofacial anomalies in private orthodontic office settings.

Aim of the study: The specific aim of this study is to conduct a descriptive and exploratory analysis of facilitators and barriers to providing orthodontic care for patients with cleft and craniofacial anomalies in private orthodontic offices.

Feasibility to conduct high quality study and recruitment potential: Cleft and craniofacial congenital anomalies are the most common congenital conditions and patients with such conditions experience debilitating functional and aesthetic problems. Orthodontists provide a pivotal role in the continuum of cleft and craniofacial care. We anticipated that orthodontists will be keen to participate in the proposed study given the nature of questions this research attempts to answer and the far reaching clinical and policy implications.

Institutional Board Review (IRB): IRB approval has been obtained (Protocol # 2020-0596).

Experimental Design, Methods, and Statistical Analyses Planned

Hypothesis to test: The study aim will test the hypothesis that practice characteristics and practitioner's affiliation with a cleft/craniofacial team are associated with facilitators and barriers to providing orthodontic care for those with cleft and craniofacial anomalies.

Rationale for Choosing State of Illinois: All orthodontists in the state of Illinois who work in private practice settings will be eligible to participate in the proposed survey-based study. We chose Illinois for the proposed study because Illinois has a high numbers of patients with cleft lip/palate and craniofacial anomalies and the state Medicaid policies will cover for orthodontic care.¹¹⁻¹²

Study Design and Statistical Analyses: The proposed study is a survey of orthodontists in the state of Illinois. A preliminary version of the questionnaire/survey instrument was developed based on our team's experience with interacting with orthodontists in private practice settings. All members of the study team are involved in providing care to patients with cleft and craniofacial anomalies and each of us have worked with both cleft/craniofacial team affiliated and non-affiliated orthodontists. Following validation of the survey instrument, a 19 items survey tool capturing information on practice characteristics, views about providing orthodontic care in office, affiliation with cleft/craniofacial teams, working with cleft/craniofacial teams, and referral practices between providers will be used to assess the facilitators and barriers.

The roster of orthodontists has been obtained from the American Association of Orthodontists which is publicly available. The survey was distributed to the orthodontists of Illinois via AAO PIR (American Association of Orthodontists Partner In Research), the survey has also been distributed to orthodontist in the state of Illinois via Orthodontic Alumni Association of Illinois. The survey was administered electronically via Qualtrics Survey Software (Qualtrics LLC) to orthodontists in the state of Illinois. All data has been downloaded in an Excel work sheet and saved in a password protected research drive of the Principal Investigator. We anticipated that not all orthodontists will respond to our first request to participate. We planned on sending up to 2 requests to participate at 3 week intervals.

Duration of Subject Participation: The study was an online survey and the time required to complete the survey was between 15 and 20 minutes.

Time Perspective/Planned Study Duration: We anticipated that the overall study period will be 1 year but we needed one more year to finish the study due to clinic closure that has happened due to COVID-19.

Planned Accrual Period:

- Developing complete study protocol and validating questionnaire; Training study personnel: Within 6 months of initiation of study
- Administration of survey to Orthodontists: 10 months
- Data analysis and writing up of final report: 6 months

Outcomes/Results:

According to AAO records, there are 211 Orthodontists in the state of Illinois are registered to AAO. The Survey has been delivered to all AAO members in the state of Illinois via AAO PIR. The survey has also been distributed to 90 orthodontists in the state of Illinois via Orthodontic Alumni Association of Illinois.

Characteristics of Respondents

- All survey recipients are orthodontists in the state of Illinois
- 60 respondents
- 42% of respondents practiced in solo practices and 37% practiced in group practices
- 62% had experience providing cleft/craniofacial orthodontics care
- 45% currently provide orthodontic care for those with cleft and craniofacial anomalies in their practices
- Only 3 respondents were formally affiliated with a cleft/craniofacial team

A descriptive analysis of the responses has been conducted followed by examining associations between various practice characteristics and facilitators/barriers to providing orthodontic care for patients with cleft and craniofacial anomalies. Fischer exact tests, Chi-square tests, and multivariable logistic regression models will be used as appropriate. Open ended questions will be analyzed by two study investigators independently. A qualitative content analyses of the open ended responses will be conducted and recurring themes will be identified. All statistical tests are two sided and p-value of <0.05 has been deemed to be statistically significant. Statistical analyses has been conducted using SAS Version 9.4 and SAS Callable SUDAAN Release 11.0.1 software.

Findings:

Facilitators for Providing Cleft/Craniofacial Care

- Highest motivating factors included:
 - Want to help those with cleft and craniofacial anomalies (47% responded this was the highest motivating factor)
 - Personal connection/experience
 - Experience providing dental care to patients with cleft and craniofacial anomalies
 - Community engagement
- Least motivating factors included:
 - Marketing of practice (only 2.3% of respondents had mentioned this as the highest motivating factor)
 - Increase revenue/production of practice)

Barriers for Providing Cleft/Craniofacial Care

- Proximity to a cleft/craniofacial team (23% responded this as the most important barrier)
- Experience (lack of) providing dental care to patients with cleft and craniofacial anomalies
- Lack of educational training on aspects of cleft and craniofacial care
- Insurance issues
- Financial implications

- Practice set up
- Compliance of patients

Communications with Craniofacial Teams

- There was wide variation in communication frequency between the respondents (providers of cleft/craniofacial orthodontic care) and craniofacial teams
- Several respondents mentioned that they were **never** or only **occasionally/sometimes** involved in decision making regarding planning for care delivery
- Over 50% of respondents did not receive treatment records/notes from cleft/craniofacial teams regarding patient care

Conclusion:

- We developed and validated a survey instrument to identify facilitators and barriers to providing cleft and craniofacial orthodontics care in private practice settings in the state of Illinois
- Strongest facilitators included “wanting to help those with cleft/craniofacial anomalies” and “personal connection/experience”
- Strongest barriers included “proximity to cleft/craniofacial team” and “lack of experience providing cleft/craniofacial care”
- It appears that communications between private practitioners and cleft/craniofacial teams could be improved

Respond to the following questions:

1. **Were the original specific aims of the proposal realized?** Yes.
2. **Were the results published?** Not yet, manuscript preparation is underway.
 - a. **If so, cite reference/s for publication/s including titles, dates, author or co-authors, journal, issue and page numbers.** Not Applicable
 - b. **Was AAOF support acknowledged?** AAOF support will be acknowledged in the publication.
 - c. **If not, are there plans to publish? If not, why not?** The plan is to submit a manuscript for publication by the end of 2022.
3. **Have the results of this proposal been presented?** Yes.
 - a. **If so, List titles, author or co-authors of these presentation/s, year and location.**
 - a. Title of Presentation “Facilitators and Barriers to Providing Orthodontic Care for Patients with Cleft and Craniofacial Anomalies in the State of Illinois “. Authors/co-authors: Maysaa Oubaidin (Presenting Author), Veerasathpurush Allareddy-Mentor, Min Kyeong Lee, Phimon Atsawasuan, Shankar Rengasamy Venugopalan, Alexandria Rozgony, Michael Han. Scheduled to present the findings at the ADA Leadership Institute Training Program event – December 2022 (Chicago, Illinois).
 - b. Title of Presentation “Development and Validation of a Questionnaire to Identify Facilitators and Barriers to Providing Orthodontic Care to those with Cleft and Craniofacial Anomalies in the State of Illinois”. Rozgony A, Allareddy V, Lee MK, Oubaidin M. Presented e-poster at the AAO Annual Session in May 2022 (Miami Beach, Florida).
 - b. **Was AAOF support acknowledged?** Yes, AAOF support was acknowledged.
 - c. **If not, are there plans to do so? If not, why not?** We plan on presenting findings via a poster at the COAST Meeting to be held in Lake Arrowhead in November 2022.
4. **To what extent have you used, or how do you intended to use, AAOF funding to further your career?**

As an early-career faculty who has a focused goal in becoming a clinician scientist in academia, this generous support of the AAOF Research Aid Award has been vital stepping stone in pursuing my academic path. The findings of this project will significantly help the community of

orthodontists in the state of Illinois to better understand the barriers that prevent them from providing the best service to our cleft and craniofacial anomalies patients. The results of this project will help myself and my colleagues to further reduce the gap between craniofacial team members, help private practices to focus on the facilitators on providing excellent service to craniofacial patients and understand the barriers that preventing them from offering treatment to our craniofacial patients. We plan on using the study findings we have so far to submit an X01 grant to NIH/NIDCR in September 2022. As a clinician-scientist, this AAOF RAA fund has been substantial for my career development.

Accounting for Project: The remaining fund on the award is approximately \$ 3000 (Initially budgeted \$ 2000 for hiring a student to help administer the survey, collect data and clean the dataset). We did not hire anyone for this due to UIC COVID restriction on hiring new people. Also an Orthodontic resident at UIC has picked this project as her thesis project. The resident has performed the previous duties as part of her thesis assignment.

We budgeted \$ 1000 for bio statistical consulting service but biostatistics have been done with no cost.