

Age of First Dental Visit and Oral Health Quality of Life

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Abstract

Objective: This project aims to examine the association between the age of a child's first dental visit and their Early Childhood Oral Health Impact Scale (ECOHIS) score.

Methods: A 22-item cross-sectional survey was distributed to guardians of healthy children aged 5 years and younger with an American Society of Anesthesiology (ASA) I and II status who presented for new patient exams. Data was collected through the REDCap secure web application using a paper-based survey chairside.

Results: In total, 117 guardians were included in the survey. The ECOHIS was assessed on a 5-point Likert scale and scores ranged from 0-52; higher values indicate poor oral health having a greater impact on the child and family. Those reporting their child's first dental visit to be at or before age one had significantly lower ECOHIS scores than guardians who selected ages 2-3 and 4-5 years respectively. The median ECOHIS score for those at or before age one was 3 (IQR: 1-8) compared to 4 (IQR: 1-10) for 2-3 years and 10 (IQR: 8-18) for ages 4 and older (P= 0.011).

Conclusion: Families and children who present for the first dental visit at a younger age have lower ECOHIS scores (healthier early childhood oral health quality of life) than those who present for the first dental visit later in life. This finding highlights the importance of educating guardians about the need for early first dental visits to mitigate the quality of life impact of poor oral health on the child and family.

Introduction

The concept of a dental home, established during a child's first dental visit, aims to provide comprehensive and individualized care for both the child and their family, emphasizing prevention and treatment of dental disease. Recognized by major dental and pediatric organizations, early dental visits have shown to reduce the financial burden and complexity of dental treatments throughout childhood. However, barriers such as socioeconomic factors and lack of awareness persist, hindering access to care. Interprofessional partnerships between dentists and pediatricians could enhance access to preventative dental visits, especially during infancy.

Research, using tools like the Early Childhood Oral Health Impact Scale (ECOHIS), seeks to measure the impact of dental disease on oral health quality of life (OHQoL) for children and their families. This study aims to investigate whether early dental visits are associated with improved OHQoL, while also exploring cultural differences and potential interprofessional collaborations to overcome barriers to care.

Methods

- The Early Childhood Oral Health Impact Scale (ECOHIS) was used for this study, which was validated and Reliable for measuring OHQoL for ages 0-5. The scale is commonly used in studies measuring the outcome of an intervention. ECOHIS also measures caregiver perceptions and was used to measure the subjective impact of caries on the child and family. It was designed by a team of dentists, allied dental team members, public health professionals and parents
- Higher scores indicate a greater impact on Oral Health Quality of Life (OHQoL). The scoring was as follows:
 - Total ECOHIS: 0-52
 - Child Impact Section: 0-36
 - Family Impact Section: 0-16
- Null Hypothesis:
 - No direct association between ECOHIS scores and the age of the first dental visit
- Patients presenting to VCU Pediatric Dentistry Clinic for new patient exams
- Design: Cross sectional survey
- Administered ECOHIS to caregivers of parents presenting for new patient exams
- Other Parameters: Anonymous participants, Age 5 and under, ASA I or II, English and Spanish Speakers

Results

	ECOHIS			CIS			FIS		
	Median	IQR	P-value	Median	IQR	P-value	Median	IQR	P-value
Child's Gender			0.0021			0.0032			0.0679
Male	6	2-11		5	2-8		0	0-3	
Female	1.5	0-6		1	0-5		0	0-1	
Household Income			0.5855			0.4565			0.9780
<\$50,000	4	0-10		3	0-7		0	0-3	
>\$50,000	5	1.5-8.5		4	1.5-6.0		0	0-2	
Education			0.1599			0.0650			0.4355
High School or Less	3	0.5-9.5		2	0-5		0	0-3	
More than High School	5	1-10		4	1-8		0	0-1.5	
Insurance			0.2983			0.1200			0.4534
Private	5	2-9		4.5	2-7.5		0	0-4	
Medicaid	3.5	1-10		2	0-6		0	0-2	
Referral for First Visit			0.0007			0.0032			0.0006
Yes	1	0-7		1	0-6		0	0-0	
No	6	2-11		4	2-8		1	0-4	
Perceived Age for Visit			0.0354			0.0139			0.3011
Up to 1	3	0-9		2	0-5		0	0-2	
2 and Above	5	2-11		5	2-9		0	0-4	
Age of First Visit			0.0111			0.0067			0.1395
Up to 1 yo	3	1-8		2	0-5		0	0-2	
2-3 yo	4	1-10		3	1-7		0	0-1.5	
4+ yo	10	8-18		8	5-10		4.5	0-6	
Language of Survey			<0.0001			<0.0001			0.0202
Spanish	0	0-1		0	0-1		0	0-0	
English	5	2-10		4	2-7		0	0-3	

Total ECOHIS Results Mean Scores:

- Age of First Visit: 1 and younger: 3 (IQR:1-8), Age 2-3: 4 (IQR: 1-10), 4 and older: 10 (IQR: 8-18)
- Gender: Males: 6 (IQR: 2-11), Females: 1.5 (IQR: 0-6)
- Referral Source: Referred by an outside provider: 1 (IQR:0-7) , Self referred: 6 (IQR:2-11)
- Recommended Age: 1 and younger: 3 (IQR: 0-9), 2 and younger: 5 (IQR: 2-11)
- Language: English: 5 (2-10), Spanish: 0 (IQR: 0-1)

Overall ECOHIS Scores:

	Mean, SD	Median, IQR
ECOHIS	5.7, 6.02	4, 1-10
Child Impact Score (CIS)	4.0, 3.95	3, 1-6
Family Impact Score (FIS)	1.7, 2.82	0, 0-3

- Study Population:
 - Study Sample: n=117, 49% male, 51% female
 - 69% Medicaid insurance
 - 49% of caregivers have a high school diploma or less
 - 53% had a household income of less than \$50,000
 - 37% worked less than 25 hours/week
- First Visits in Study Population
 - 9% first visit before age 1
 - 48% during age 1
 - 34% age 2-3
 - 9% age 4-5
- Perceived Recommended Age
 - 67% were able to identify the first visit as being age 1 or younger
 - 33% age 2 and older for first dental visit
 - Significant correlation($p=0.0001$) between reported age of first visit and perceived recommended age of first visit
 - No other caregiver-related variables were statistically significant

Discussion

- Strengths:
 - Statistical significance was shown between early first dental visits and lower total ECOHIS and Child Impact Scores.
 - Used ECOHIS in a novel way
 - Comparing scores with reported age of first visit
 - Previously used in outcomes studies measuring the impact of an intervention (GA)
 - Showed a relationship between ECOHIS and referral source.
 - Those that were referred to pediatric dentistry: Median score: 1 (IQR: 0-7)
 - Self-referred: Median: 6 (IQR: 2-11)
 - Expands the literature to include 0-2 age group
 - Common to see studies from 3-5
 - Available in 2 languages
 - Median Spanish ECOHIS scores: 0 (IQR: 0-1)
 - Median English ECOHIS scores: 5 (IQR: 2-10)
- Limitations:
 - Cross-sectional
 - Richmond, VA, University Teaching Hospital
 - Recall bias
 - Reported age of the first visit
 - Referral source
 - Unable to compare ECOHIS with other metrics
 - DMFT
 - Plaque Score
 - Ideal Sample Size: n=100-300 (n=117)
 - Limited patients age 4 and older
 - Validation Studies Range from 200-350 participants
 - ECOHIS Responsiveness Studies from 30-200 participants
 - Family Impact Score questions are more appropriate for ages 3-5 years
 - Surveys administered at various points in the appointment

Conclusion

- Statistically significant relationship exists between ECOHIS scores:
 - Reported age of first dental visit
 - Language spoken
 - Referral source
 - Perceived age of first visit
- Statistically significant relationship was not found between:
 - Household Income
 - Education Level
 - Insurance status
 - Hours Worked

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