Parent Perception of Behavior among Children with Autism Spectrum Disorder: A Cross Sectional Study

Marisa Chanin, D.M.D., Nicole Etcheverry, D.M.D., Maria A. Levi-Minzi, PhD, Jennifer D. Chung, PhD, Oscar Padilla, D.D.S., Romer Ocanto, D.D.S.
College of Dental Medicine, Nova Southeastern University– Fort Lauderdale, FL

INTRODUCTION

- ASDs are neurobehavioral disorders often presenting within the first 2 years of life.
- In the United States, pediatricians evaluate for ASD between 18 and 30 months of age.
- About 1 in every 36 children are diagnosed with autism spectrum disorder (ASD), according to the Center for Disease Control.
- Oral health care is one of the most prevalent unmet health care needs among U.S. children, especially those with ASD.
- Children with ASD have a variable ability to cooperate and have a successful dental visit.
- Collaborating with parents is a critical part in predicting the success of a dental visit for a child with ASD.

PURPOSE

The purpose of this study was to assess parent ability to predict dental treatment cooperation by their child at the first dental visit at the Mailman Segal Dental Clinic through examining the potential relationship between parental reported cooperation and the productivity level achieved during the appointment using the Task Analysis Score.

METHODOLOGY

DATA COLECTION — ELECTRONIC – RETROSPECTIVE DATA COLLECTION (REDCap)

Ethical approval (Exempt)

Patient charts were systematically reviewed by first appointment and included in the study if inclusion criteria was met.

- DEMOGRAPHICS (GENDER, AGE, ETC.)
- FRANKL SCALE (DEFINE PATIENT BEHAVIOR LEVEL)
- TASK ANALYSIS SCALE (DEFINE APPOINTMENT PRODUCTIVITY)
- PREVENTIVE ORAL CARE ROUTINE

axiUm

Inclusion Criteria:
- Age of 8 years old
- Diagnosed Autism Spectrum Disorder
- Mailman Segal Dental Clinic (SN clinic)
- Inactive or active status in axiUm

Exclusion Criteria:
- Over the age of 8
- Do not have the Pre-Treatment Assessment form completed
- Do not have the axiUm TAS form completed
- Do not have a Frankl score documented on their first visit

DATA ANALYSIS

Descriptive Statistics
- Demographics (Age, Gender, Ethnicity)
- Verbal communication
- Past dental visit
- Patient Dental Needs
- Caregiver behavior management techniques
- Mean score: Parental Perception of behavior
- Mean score: Level of challenging behaviors

Parental perception of behavior score was made up of a scale based on 3 questions:

1. How would you describe your child's level of challenging behavior?
2. The Patient's level of cooperation is likely to be (check only one)
3. How would you describe your child's ASD?

Regression models
Models were constructed to examine the productivity level achieved during the first dental appointment (measured by outcome variables TAS and Frankl scores) by the following factors:

- Demographics (Age, Gender, Ethnicity, Verbal communication
- Parental Perception of behavior score and level of challenging behaviors
- Past dental visit and Patient Dental Needs
- Selected Caregiver behavior management techniques

RESULTS

Table 1: Patient Demographics

Mean patient age: 7.95 (SD=2.76, Range= 3-14)

Variable	N	%
Gender[1]		
Male	193	82.1%
Female	41	17.4%
Race		
Caucasian	105	44.7%
Multi-race	23	9.8%
African American	22	9.4%
Asian	8	3.4%
American Indian	1	0.4%
Unknown/not reported	76	32.3%
Hispanic Ethnicity		
Hispanic	69	29.4%
Non-Hispanic	48	20.4%
Unreported	118	50.2%
Income		
$0-$15,000	12	5.1%
$16,000-$29,000	10	4.3%
$30,000-$49,000	18	7.7%
$50,000-$69,000	15	6.4%
$70,000 or more	23	9.8%
Prefer not to answer	33	14.0%
Unanswered/missing	124	52.8%

[1]Data missing for 1 participant

Table 2: Patient Health Characteristics

	N	%
ASD Diagnosis	218	92.8%
ASD Level		
Mild	55	23.4%
Moderate	64	27.2%
Severe	10	4.3%
Other	76	32.3%
Co-Occurring disorders		
Speech Delay	92	39.1%
Developmental Delay	57	24.3%
Prescribed Medication	30	12.8%
Other Services Patient is Receiving		
Speech Therapy	133	56.6%
Occupational Therapy	108	46.0%
ABA	83	35.3%
Physical Therapy	16	6.8%
Patient Communication Style		
Uses Nonverbal Communication	86	36.6%
Can Communicate Verbally	83	35.3%
At Home Dental Care		
Manual toothbrush	121	48.5%
Electric toothbrush	37	15.7%
Toothpaste with Fluoride	84	35.7%
Uses Floss	31	13.2%

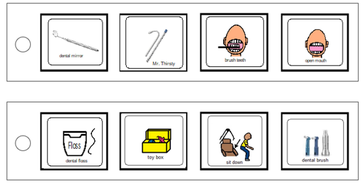
Table 3: Patient Dental Visit Characteristics

	N	%
Ever Visited the Dentist	91	38.7%
Patient Dental Needs		
Routine Exam	195	83.0%
Cleaning	133	56.6%
Not sure	39	16.6%
Fillings	13	5.5%

Table 4: Patient Behavioral Characteristics

	N	%
Caregiver Perceived Level of Patient Cooperation		
Short attention span	65	27.7%
Not Sure	72	30.6%
Non-focused	51	21.7%
Age Appropriate	49	20.9%
Aggressive	46	19.6%
Playful	34	14.5%
Caregiver Perceived Best Management Technique to Use During Appointment		
Not Sure	127	54.0%
Short Multiple Visits	85	36.2%
Sedation	36	15.3%
Restraint	21	8.9%
OR/General Anesthesia	7	3.0%
Caregiver Rating of Challenging Behavior		
Level of Challenging Behavior		
Minimal	52	22.1%
Disruptive (moderate)	69	29.4%
Severe (high)	16	6.8%
Not applicable	98	41.7%
Frequency of Challenging Behaviors		
<1 per day	32	13.6%
1-2 per day	63	26.8%
3+ per day	38	16.2%
Not applicable	100	42.6%

TASK ANALYSIS



- The task analysis score (TAS) is a quantitative tool to measure the efficacy of desensitization during dental visits.
- This TAS value is compared from appointment to appointment to evaluate the progress of the patient's success in desensitization.
- Following the completion of the task strip, the clinical task analysis form is automatically calculated based on the number of completed tasks and recorded into the axiUm patient record.

RESULTS

HISPANIC ETHNICITY → TAS SCORE

Hispanic patients have significantly lower TAS values than non-Hispanic patients.

RESULTS
- Our findings indicated that ethnicity significantly predicted TAS score.
- The model was run to predict TAS based on gender, ethnicity, and verbal communication.
- Gender and verbal communication did not show a significant correlation.
- It was found that children with Hispanic ethnicity had a significantly lower TAS score than their non-Hispanic counterparts.

LIMITATIONS
- Participants were recruited from the MSDC in Fort Lauderdale, FL.
- The results of this study may not be comprehensive of patients with special health care needs in other geographical locations.
- The percentage generated from the TAS form reflects the tasks that were offered and completed; however, was not calculated from the entirety of the tasks on the form. Thus, it was difficult to find a true correlation based on the TAS calculated score alone since the percentage does not indicate how many tasks were completed.

Patient Characteristics	*B*	95% CI for *B*		*SE B*	β	R^2	ΔR^2
		LL	*UL*				
Model						0.05	0.03
Constant	82.16	70.16	94.16	6.08			
Child Age	-0.08	-1.15	1.00	0.54	-0.01		
Child Race/Ethnicity Hispanic*	***-10.36***	***-17.18***	***-3.53***	***3.46***	***-0.22***		
Male Gender	0.02	-7.30	7.34	3.71	0.00		
Verbal Communication	3.96	-2.38	10.31	3.22	0.09		

CONCLUSIONS

- Parents may not be able to accurately predict their cooperation level that is needed in a dental setting due to a variety of factors. Parent prediction of their child's behavior did not significantly predict TAS score.
- Patients can exhibit high levels of behavior but may have sensitivities when it comes to their dental experience (i.e., audiovisual stimuli, tastes, and oral stimuli), so they may not be as cooperative when it comes to tasks that could trigger their particular sensitivities. Because of this, TAS could be affected more significantly.
- These findings can help provide pediatric dentists and other health care professionals to better assist parents with assessing their child's anticipated behavior and cooperativity level during the initial dental visit. This can benefit the patient by bringing techniques learned in the dental setting home to enhance daily oral health care routine and prepare for future dental appointments to enhance success of the first dental visit.

REFERENCES

ACKNOWLEDGEMENTS

We thank Dr. Oscar Padilla, Dr. Jennifer Chung, and Dr. Maria Levi-Minzi for their continued support and guidance. We thank NSU for providing ethical approval and resources to collect our data. We thank the HPD Grant program for supporting this study. This project is/was supported by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) under grant number D88HP20126 and titled, "Postdoctoral Training in General, Pediatric and Public Health Dentistry and Dental Hygiene". This information or content and conclusions are those of the author and should not be construed as the official position or policy of, nor should any endorsements be inferred by HRSA, HHS or the U.S. Government.