Improving Oral Hygiene in Children with Autism with Task Strips

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INTRODUCTION

- Establishing proper oral hygiene at an early age is an important aspect of a child's preventative dental care and overall oral health.
- Maintaining proper at-home oral hygiene care is difficult in children with autism spectrum disorder (ASD) due to impairments in communication and behavior that can lead to dental concerns such as cavities.
- Behavior analysts utilize applied behavior analysis techniques to modify behavior with dental desensitization visits to improve appointment outcomes and allow for dental treatment.
- Visual task strips allow patients to have a visual cue to prepare themselves for the steps of an appointment and define a beginning and end to the appointment
- For children with autism, utilizing task strips can help to emphasize preventive oral care at home with the help of parents and caregivers who struggle to provide home oral hygiene care.
- This research will study the effects of using a visual support (i.e., visual schedule/visual task strip) to improve at home oral hygiene practices (i.e., brushing) for children with ASD.

OBJECTIVES

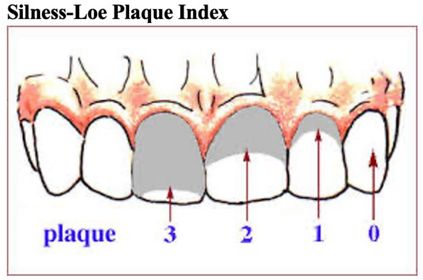
The purpose of this research study is to measure the change in amount of plaque in children diagnosed with Autism Spectrum Disorder (ASD), which have been using visual task strips at home designed to help them follow brushing steps over a period of 3 months. This study will establish a baseline plaque score in subjects and monitor their progress, introduce and educate patients and parents about brushing with a task strip and examine the relationship between task analysis utilization and plaque scores.

METHODS

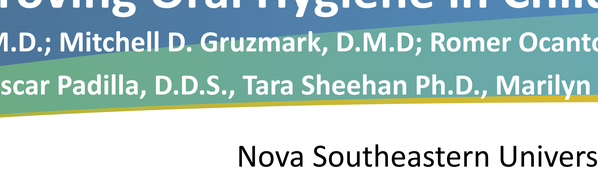
- Children with ASD (N=39) and their parents that visit the MSC dental clinic at NSU were evaluated. The 39 children were divided into 22 test subject cases and 17 control subjects.
- Patients that had moderate and high plaque corresponding to a Silness and Loe plaque index of 2 or higher were invited to participate.
- The study will have a yoked control design which means as one participant is enrolled in the experimental group, concurrently a matched participant will be enrolled in the control group.
- For the experimental group, the parents were instructed to follow the directions of the home task strip training by the ABA therapist and mark the brushing data sheet given to them.
- Baseline plaque score were recorded on all the study subject using Silness and Loe plaque index on teeth # A, E, J, K, P, T (or on teeth # 3,8,14,19, 25, 30, if present). Plaque scores range from 0-3.
- Plaque scores were recorded at baseline and an interval of 1 month and 2 months along with a follow-up questionnaire at the end of the visit.
- Descriptive statistics were calculated, including patient demographics.
- Mean plaque index scores were calculated, and two-way mixed ANOVA was conducted to examine differences in plaque scores among groups over time.

METHODS

Silness-Loe Plaque Index



Score	Description
0	No plaque
1	A film of plaque adhering to the free gingival margin and adjacent area of the tooth. The plaque may be seen in situ only after application of disclosing solution or by using the probe on the tooth surface.
2	Moderate accumulation of soft deposits within the gingival pocket, or the tooth and gingival margin which can be seen with the naked eye.
3	Abundance of soft matter within the gingival pocket and/or on the tooth and gingival margin.



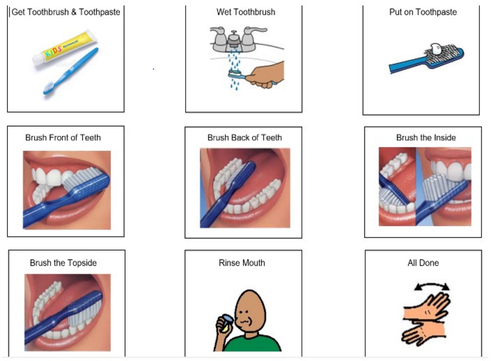
MATERIALS

Brushing Checklist

	Week 1	Week 2	Week 3	Week 4	Week 5
Monday					
Tuesday					
Wednesday					
Thursday					
Friday					
Saturday					
Sunday					

Visual Task Strip used in the study

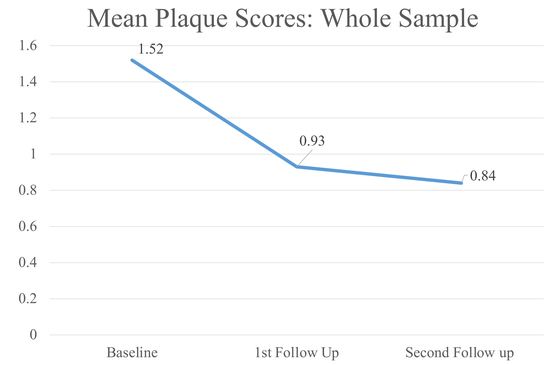
The series of pictures will guide the children at home to perform the brushing method.

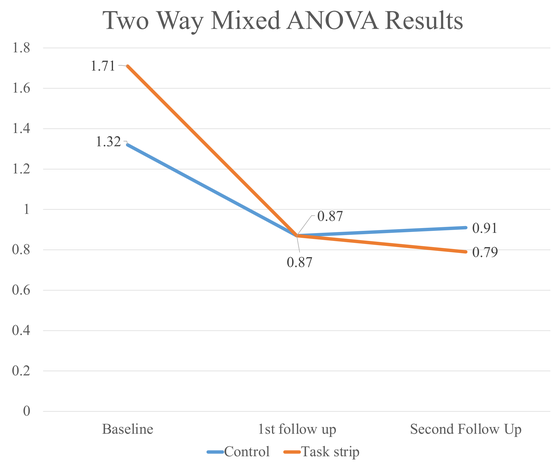


RESULTS

- The mean age of the patients was 5.87 (SD=1.74). Patients ranged in age from ages 2-6.

Patient Characteristics		
Variable	N	%
Gender		
Male	31	79.5%
Female	8	20.5%
Race		
White	35	89.7%
African American	4	10.3%
Hispanic Ethnicity		
Yes	25	64.1%
No	12	30.8%
Unreported	2	5.1%





RESULTS

- Most patients were male (N=31; 79.5%) and white (N=35; 89.7%).
- More than half reported Hispanic ethnicity (N=25; 64.1%).
- Baseline mean plaque level for the whole sample was 1.52.
- Overall plaque scores decreased over time from 1.52 at baseline to 0.84 at the 2nd follow up.
- Based on the two-way mixed ANOVA test, there was not a statistically significant interaction between the use of the task strip and time on plaque score, $F(2, 60) = 3.01$, $p = .06$ partial $\eta^2 = .44$.
- The main effect of time showed a statistically significant difference in mean plaque score at the different time points, $F(2, 60) = 23.89$, $p < .001$, partial $\eta^2 = .903$.
- Among the whole sample, plaque decreased significantly between baseline and 1st follow up appointment, $p < .001$.
- Among the whole sample, plaque also decreased significantly between baseline and 2nd follow up appointment, $p < .001$.

CONCLUSIONS

- The oral hygiene of the group that received visual task strips for brushing at home did not yield significant differences in plaque level among children with ASD.
- Despite this, all children receiving treatment at the clinic did experience a significant decrease in plaque scores.
- It is possible that the children receiving care in our specialized dental setting already have better oral health habits.
- Further studies related to use of task strips in dentistry can show their potential in teaching dental skills to special need children, especially to children with ASD.

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