

ABA Therapy and Oral Health in Children with Autism



Abrar Ahmed, DMD; Jacy Stauffer, DMD; Fadra Whyte DMD, MPH
NYU Langone Dental Medicine, Advanced Education in Pediatric Dentistry Residency, San Diego, CA
San Ysidro Health, San Diego, CA

NYU Langone Dental Postdoctoral
Residency Programs

INTRODUCTION

- Autism spectrum disorder (ASD) is a developmental disorder that describes a series of deficits in social communications and interactions that result from early altered brain development and neural reorganization.¹
- Research has shown that one of the main factors contributing to poor oral health in children with ASD includes difficulty tolerating oral care.¹
- Children with ASD may exhibit uncooperative behaviors in both the dental office and home setting due to sensory sensitivities and lack of socio-cognitive understanding.¹
- Often, this opposition to dental care, or aversion to oral hygiene maintenance (i.e. brushing, flossing, etc) eventually leads to general deterioration in oral health.^{1,3}
- While the American Academy of Pediatric Dentistry (AAPD) recommends various non-pharmacologic behavior management methods such as Tell-Show-Do and positive reinforcement, these methods alone are not always successful in children with ASD.^{1,2}
- Children with ASD may be candidates for Applied Behavioral Analysis Therapy (ABAT) to address the main symptoms and associated behaviors of ASD.⁴
- Specific strategies on managing a child with ASD may also be taught to pediatric dental providers, thereby increasing competency when providing care in a clinical setting to this patient population.
- Further studies need to be performed to understand the extent to which ABAT services help in promoting oral health and disease prevention in children with autism.

PURPOSE

- The purpose of this cross-sectional study is to assess caregivers’ perception of oral health habits amongst their children with autism who have received Applied Behavioral Analysis Therapy (ABAT) versus those who have not received ABAT.

METHOD

- Caregivers of children with autism, ages 2-14, completed a paper survey at the beginning of their child’s dental appointment.
- The survey contained 3 sections: 13 questions regarding caregiver’s demographics (one omitted due to wording), 5 questions regarding the child’s demographics (gender, age, race, insurance, and level of autism) and questions regarding oral health maintenance based on whether their child was/is receiving ABAT (12Q) or not (6Q).
- Three main categories were assessed to determine whether improvements in oral health maintenance were observed amongst children with autism who were receiving ABAT: frequency of brushing teeth, frequency of flossing teeth, and frequency of dental visits.
- The same three categories were also assessed amongst caregivers whose children with autism had never received ABAT.
- A marginal homogeneity test was used to assess the statistical significance of these categories.

REFERENCES

1. Como, D. H., Stein Duker, L. I., Polido, J. C., & Cermak, S. A. (2020). Oral Health and Autism Spectrum Disorders: A Unique Collaboration between Dentistry and Occupational Therapy. International journal of environmental research and public health, 18(1), 135.
2. Lord, C., Elsabbagh, M., Baird, G., & Veenstra-Vanderweele, J. (2018). Autism spectrum disorder. Lancet (London, England), 392(10146), 508–520.
3. Hage, S., Lopes-Herrera, S. A., Santos, T. F., Defense-Netvr, D. A., Martins, A., Sawasaki, L. Y., & Fernandes, F. (2020). Oral hygiene and habits of children with autism spectrum disorders and their families. Journal of clinical and experimental dentistry, 12(8), e719–e724.
4. Roane, H. S., Fisher, W. W., & Carr, J. E. (2016). Applied Behavior Analysis as Treatment for Autism Spectrum Disorder. The Journal of pediatrics, 175, 27–32.

Table 1:

Frequency of Brushing During/ After ABAT Compared with Before ABAT Exposure					
Brushing Before ABAT Exposure	Brushing During/ After ABAT Exposure				
		G1	G2	G3	P-Value
Total	N	N(%)	N(%)	N(%)	P<0.01
G1	21	17(80.9%)	3(14.2%)	1(4.8%)	
G2	27	15(55.6%)	12(44.4%)	0 (0%)	
G3	31	7(22.6%)	12(38.7%)	12(38.7%)	

Legend 1:
Group 1 (G1): Caregivers who brush their child’s teeth more than once a day
Group 2 (G2): Caregivers who brush their child’s teeth only once a day
Group 3 (G3): Caregivers who brush their child’s teeth a few times a week or less (few times a week, once a week, and rarely)

Table 2:

Frequency of Flossing During/ After ABAT Compared with Before ABAT Exposure					
Flossing Before ABAT Exposure	Flossing During/ After ABAT Exposure				
		G1	G2	G3	P-Value
Total	N	N(%)	N(%)	N(%)	P<0.01
G1	12	11(91.7%)	0(0%)	1(8.3%)	
G2	14	7(50%)	6(42.9%)	1(7.1%)	
G3	53	10(18.9%)	11(20.7%)	32(60.4%)	

Legend 2:
Group 1 (G1): Caregivers who floss their child’s teeth once a day
Group 2 (G2): Caregivers who floss their child’s teeth a few times a week
Group 3 (G3): Caregivers who floss their child’s teeth once a week or less (once a week, once a month, and rarely)

Table 3:

Frequency of Dental Visits During/ After ABAT Compared with Before ABAT Exposure					
Dental Visits Before ABAT Exposure	Dental Visits During/ After ABAT Exposure				
		G1	G2	G3	P-Value
Total	N	N(%)	N(%)	N(%)	P<0.01
G1	14	14(100%)	0(0%)	0(0%)	
G2	53	15(28.3%)	38(71.7%)	0(0%)	
G3	12	3(25%)	5(41.7%)	4(33.3%)	

Legend 3:
Group 1 (G1): Caregivers who take their child to the dental clinic once every 3 months or more (once every 3 months and once a month)
Group 2 (G2): Caregivers who take their child to the dental clinic once every 6 months
Group 3 (G3): Caregivers who take their child to the dental clinic once a year or less (once a year, once every 2 years, and rarely)

RESULTS

- 120 surveys were collected, with 7 excluded due to not being complete, leaving 113 for analysis; 79 caregivers reported their child had exposure to ABAT.
- Frequency of Brushing:**
There was a significant increase in the number of times caregivers found more ease with brushing their child’s teeth per day before ABAT and after ABAT. Of the 27 respondents who used to brush once a day (Group 2; G2), 15 (55.6%) jumped to brushing their child’s teeth more than once a day (Group 1; G1). Of the 31 respondents who were only able to brush a few times a week or less (Group 3; G3), 12 (38.7%) found more ease brushing once a day (G2) and 7 (22.6%) were able to brush more than once a day (G1); P< 0.01 (Table 1).
- Frequency of Flossing:**
There was also a significant increase in the number of times caregivers found more ease with flossing their child’s teeth before ABAT and after ABAT. Of the 14 respondents who were only able to floss a few times a week (G2), 7 (50%) of them were able to floss their child’s teeth once a day (G1). Of the 53 who were able to floss their child’s teeth once a week or less (G3), 11 (20.7%) were able to jump to flossing a few times a week (G2) and 10 (18.9%) were able to jump to flossing once a day (G1); P< 0.01 (Table 2).

- Frequency of Dental Visit:**
There was also a significant increase in the number of times caregivers took their child to dental visits before ABAT compared to after ABAT. Of the 53 respondents who were visiting the dental clinic once every 6 months (G2), 15 (28.3%) jumped to visiting the dental clinic once every 3 months or more (G1). Of the 12 respondents who were visiting the dental clinic once a year or less (G3), 5 (41.7%) jumped to visiting the dental clinic once every 6 months (G2), and 3 (25%) jumped to visiting a dental clinic every 3 months or more (G1); P< 0.01 (Table 3).
- Of the 79 caregivers whose child had received ABAT, 73 (92.4%) felt comfortable/ very comfortable managing their child’s oral health (Figure 1), and 71 (89.8%) were satisfied/ very satisfied with their child’ acceptance of oral health maintenance at home, 70 (88.6%) were satisfied/ very satisfied with their child’s acceptance of periodic evaluations/prophylaxis in a dental clinic (Figure 4). 75 (94.9%) answered they would recommend the oral health behavioral teachings by ABAT to other caregivers (Figure 3).
- Of the 34 caregivers whose children had never received ABAT, 29 (85.3%) felt comfortable/very comfortable managing their child’s oral health (Figure 2). Only 15 (44.1%) were aware of the existence of ABAT and 32 (94.1%) believed that ABAT may help their child improve their oral hygiene.

LIMITATIONS AND STRENGTH

- Several limitations were observed within this study including: 1. Number of participants (uneven distribution of patients exposed to ABAT and not exposed); 2. Caregivers may not have been able to differentiate between improvements in patient’s behaviors associated with ABAT versus oral hygiene instruction provided from our pediatric dental clinic.

CONCLUSIONS

- It appears that ABAT has a positive effect regarding caregivers’ frequency of being able to brush their child’s teeth, floss their child’s teeth, and take them to their dental appointments.
- Most caregivers whose child had not received ABAT believed that a behavioral therapy program would help their child improve their oral health habits.
- Pediatric dentists should inform their patients’ families about the benefits of ABAT.
- Interprofessional collaborations between pediatric dental providers and ABA therapists can aid in providing high quality patient centered care to this at-risk patient population by enforcing oral health promotion and prevention outside and within a dental clinic

Figure 1: ABAT Exposed: Comfort Levels Managing Child's Oral Health (N= 79)

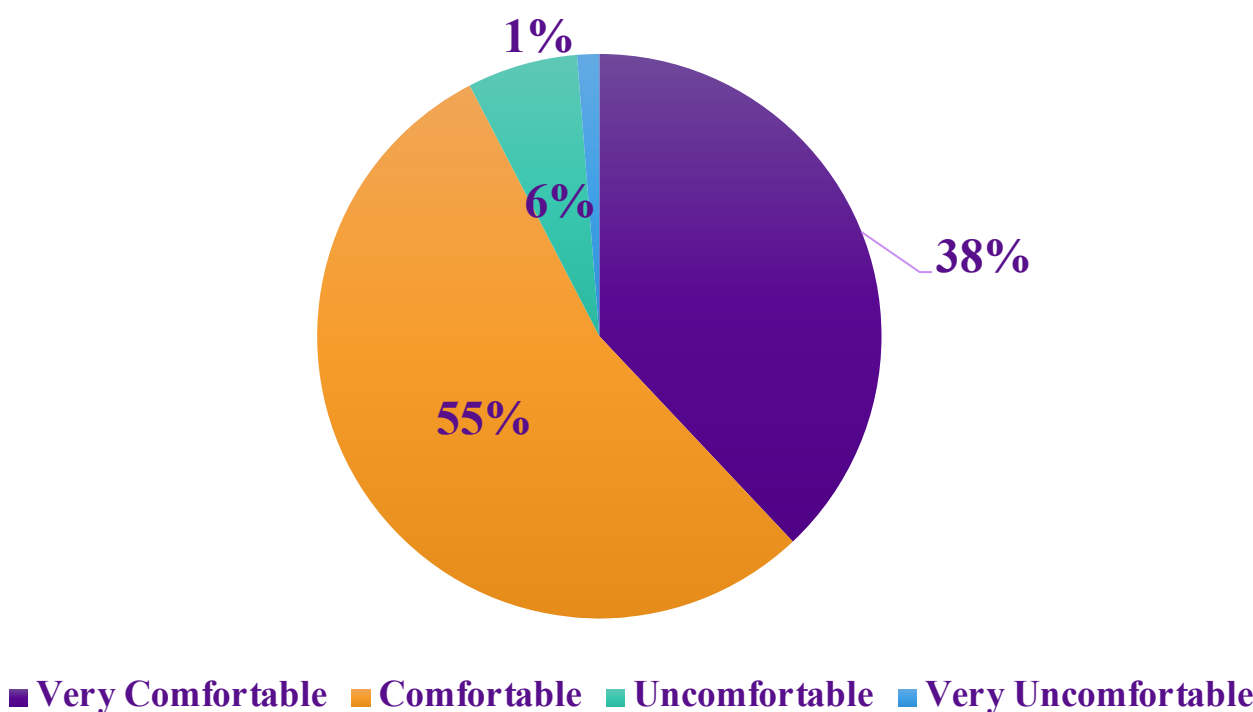


Figure 2: No ABAT Exposure: Comfort Levels Managing Child's Oral Health (N= 34)

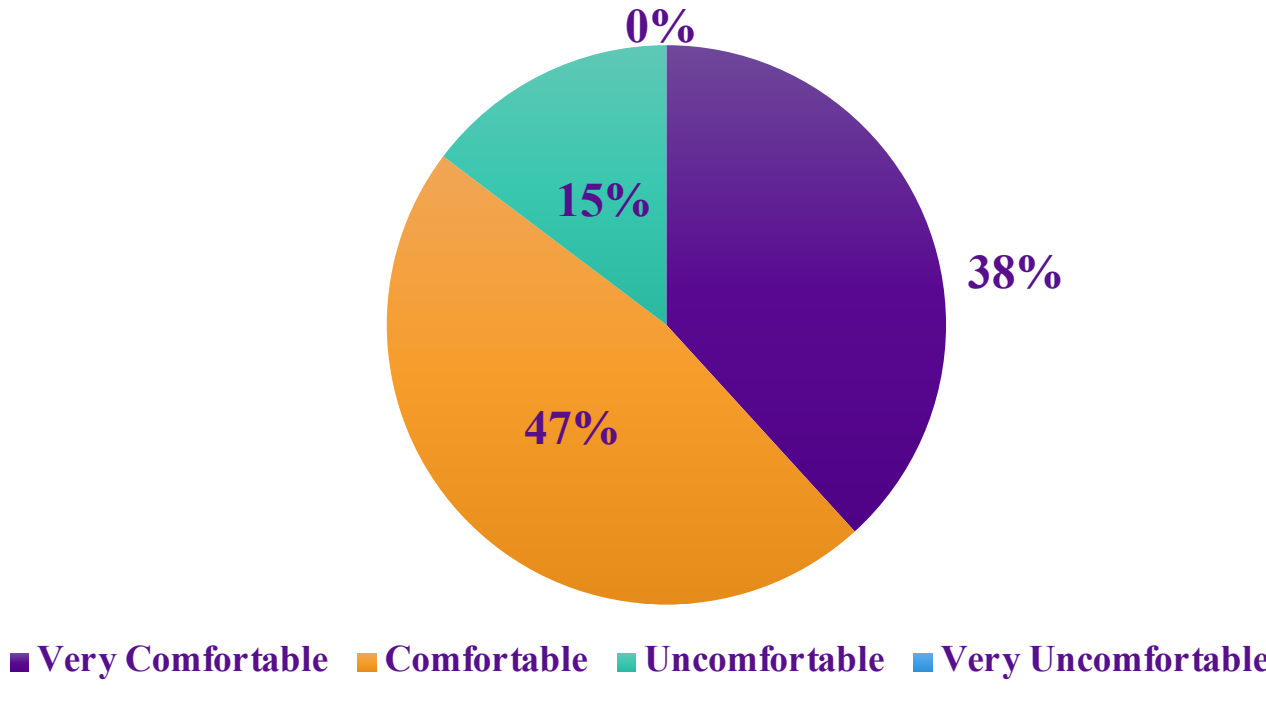


Figure 3: How Likely Caregivers Whose Child Has Been Exposed to ABAT are Likely to Recommend ABAT

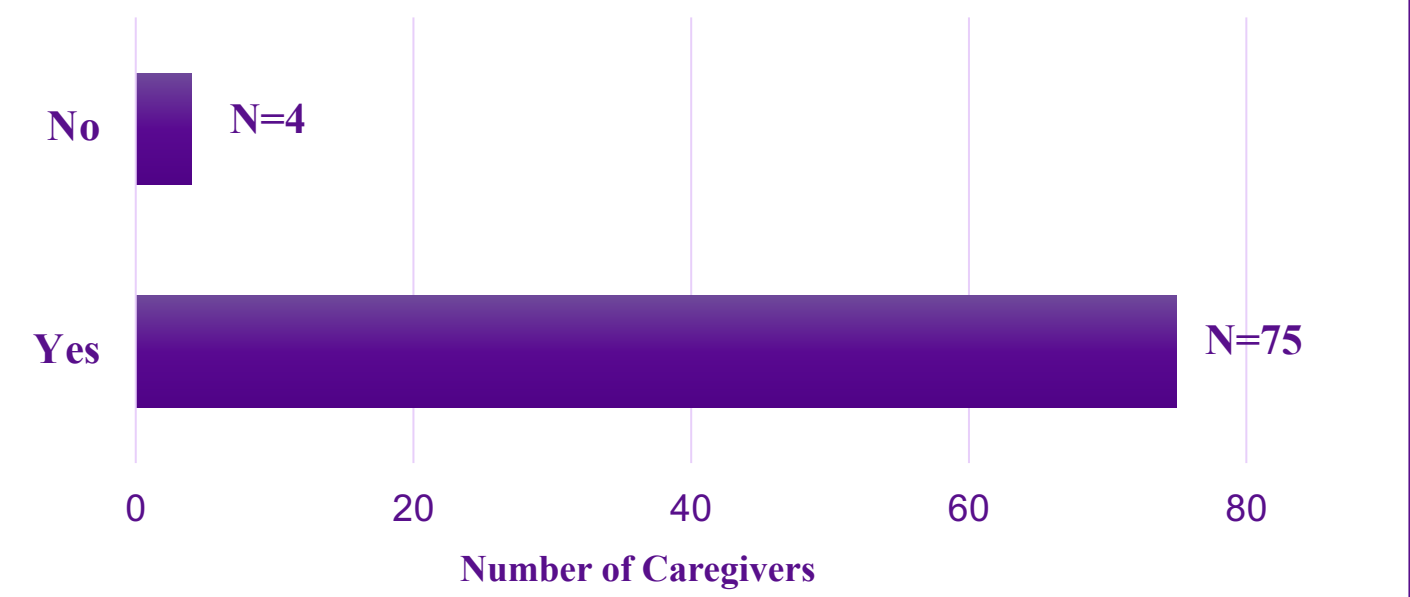


Figure 4: Satisfaction Levels of Caregivers whose child has been exposed to ABAT

