

Nutritional Resources and Challenges of Children with Autism Spectrum Disorder

Jessie Jiang, DDS · Maria Velasco, DMD, MEd, MS
Calli Baranouski · Tiffanie Chiu · Yumi Rivas Quintero · Cristina Sanchez

Introduction

- Autism spectrum disorder (ASD) is a neurological and developmental disorder that is characterized by difficulty with social communication and interaction, restricted interests, and repetitive behaviors¹
- Prevalence of ASD in the US is 1 in 44 children²
- Children with ASD:
 - Are 4 times more likely to experience gastrointestinal (GI) complaints – constipation, diarrhea, and abdominal pain
 - May show changes in behavior – irritability, aggression, sleep disturbances, or self-injury³
 - Are often resistant to novel experiences – such as trying new foods³
 - Many have sensory hypersensitivities – reject foods due to an aversion to texture, temperature, or other characteristics³
- Some studies have found that children with ASD consume less fruit, dairy products, vegetables, proteins, and starches⁴
- Children with ASD are significantly more likely to be put on caregiver-initiated complementary/alternative diet therapies, such as:
 - Elimination diet/elemental diet
 - Food coloring/food additives avoidance diet
 - Gluten free diet/casein-free diet
 - Ketogenic/modified Atkins diet
 - Specific carbohydrate diet
- Purpose
 - Gather information on the eating habits, special diets, nutritional resources, and prevalence of nutritional aversions and GI problems in children with ASD
 - Assess whether the nutrition anticipatory guidance provided by dentists to this population needs to be tailored to their specific nutritional needs

Methods

- Overseen by IRB of the University of Pennsylvania
- Phone consent obtained from caregivers for enrollment
- Subjects recruited from patients of record diagnosed with ASD who had been to University of Pennsylvania School of Dental Medicine Pediatric Clinic for recall appointments
- Caregivers called and surveyed via phone or email regarding their child's regular diet, special diets or diet modifications, nutrition assistance received, past experiences with healthcare providers and nutrition, and GI problems their child has encountered
- Caregivers were given a chance to provide recommendations on how dentists can provide nutritional information tailored to their child's needs, and asked if they would be interested in meeting with a registered dietitian at their next dental visit

Results

- 319 caregivers were contacted between February 2021 and January 2022
 - 45 completed the questionnaire
- 40% of caregivers reported their child having a history of GI problems
- 69% considered their child a picky eater
- 64% of patients have seen a feeding specialist or nutritionist
- 61% would be interested in a nutritionist visit alongside their dental appointment
- 54% of caregivers felt nutrition information provided by their dentist was not relevant
- Many caregivers provided further information about their child's picky eating
 - Specific issues include limited diet, difficulty introducing new foods, issues with texture, and difficult eating habits
- Special diets tried by caregivers: gluten free/casein free diet, high fat diet, whole foods diet, eliminating red dye, eliminating sugar, fish oil supplementation, and probiotic supplementation
- Many wanted more information from the dentist about how to increase fruit and vegetable intake and about special diets and cavities.

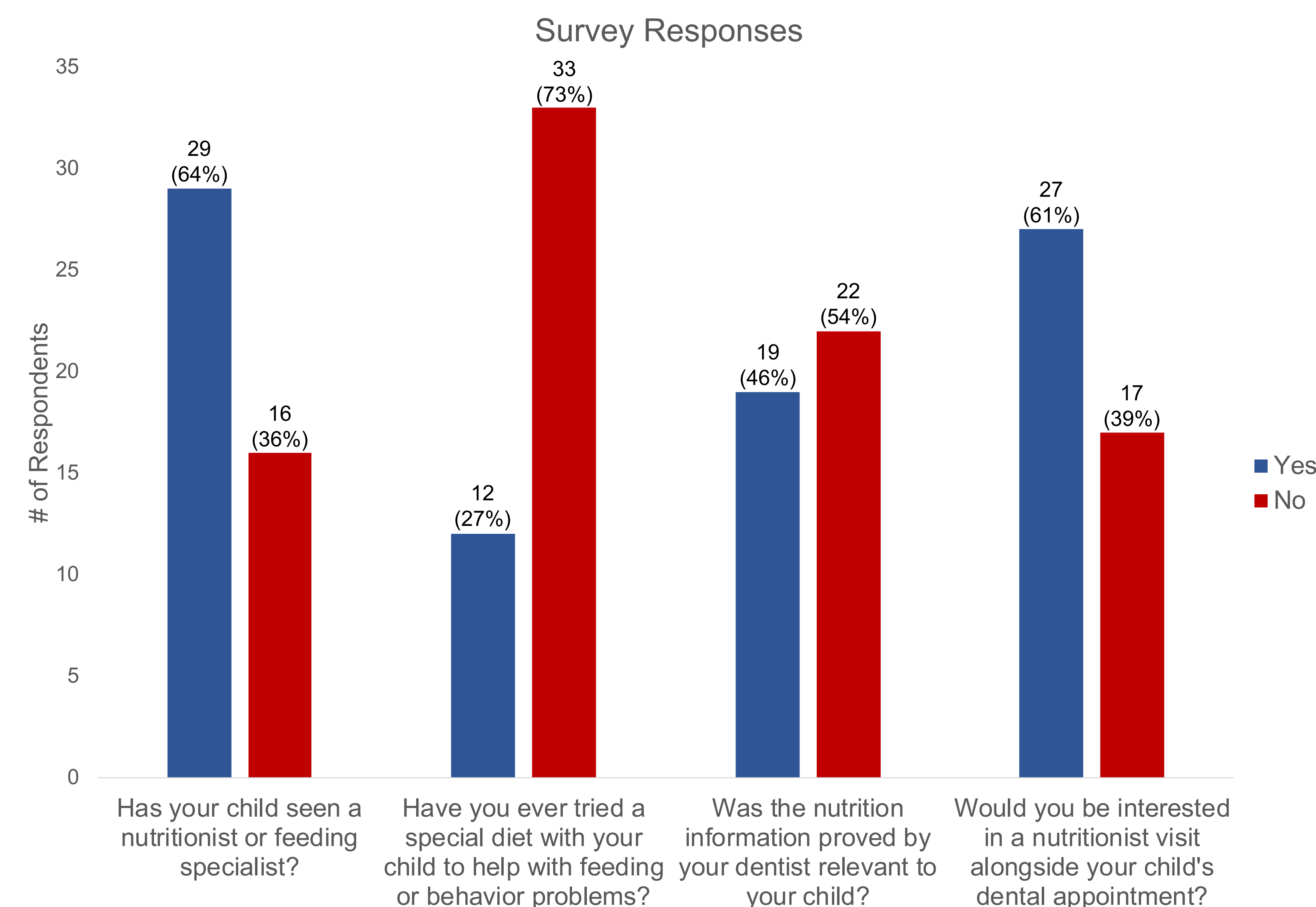


Figure 1. Responses to questions regarding nutritionist visits, special diets, and relevant information provided by dentist.

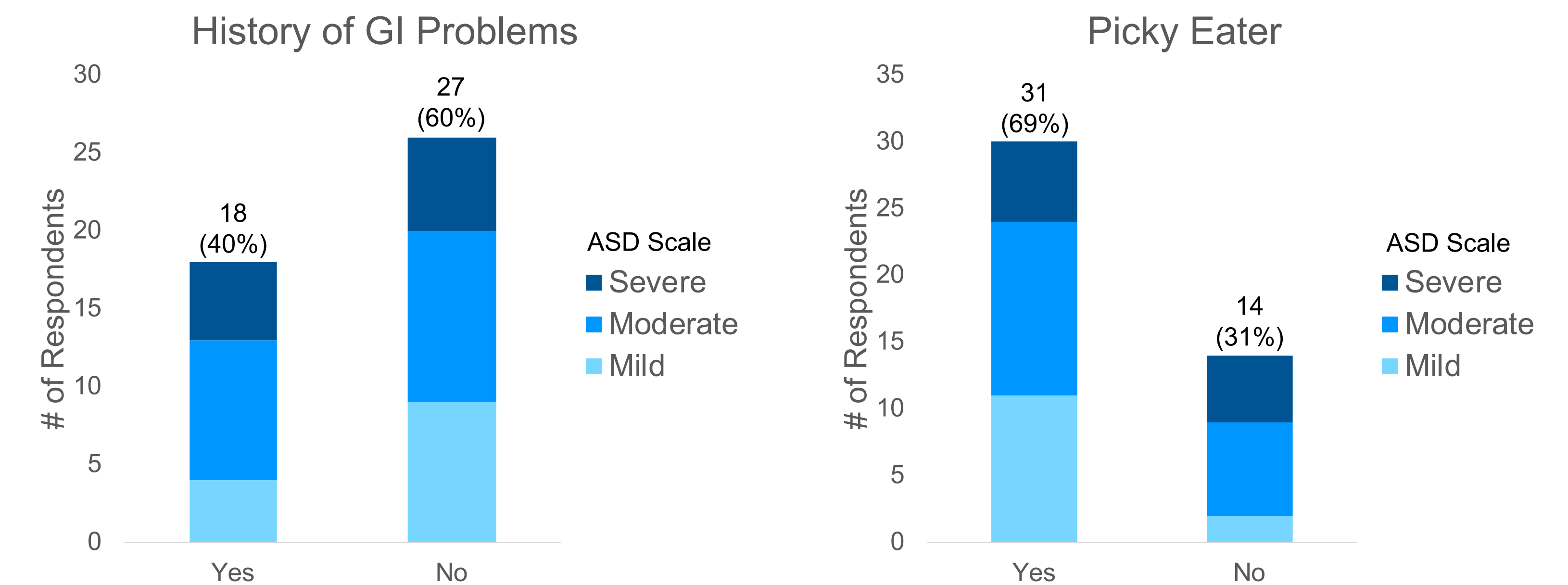


Figure 2. Response to question: "Child has history of GI problems?" grouped by ASD scale

Figure 3. Response to question: "Do you consider your child a picky eater?" grouped by ASD scale

Discussion

- Children with ASD are likely to have a history of GI problems and picky eating, regardless of ASD scale reported
- Majority of patients have seen a nutritionist or feeding specialist and would be interested in seeing a nutritionist alongside their dental appointment
- Majority of caregivers felt nutrition information provided by their dentist was not relevant
- Many wanted more information on:
 - Increasing intake of fruit and vegetables
 - How special diets and picky eating affect caries risk
- Limitations:
 - No control group for comparison
 - Possible selection bias as caregivers who responded may have more nutritional concerns
- Results show there is a need for pediatric dentists to educate themselves regarding the GI problems and eating habits of children with ASD so that they can provide patients and their families anticipatory guidance tailored to these nutritional concerns

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