

Research Article

A Preliminary Survey of Pediatric Feeding Experience and Practices among Behavior Analysts

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Abstract

We surveyed Board Certified Behavior Analysts (BCBAs[®]) about their experiences with pediatric feeding problems. Results show that the most common forms of inappropriate mealtime behavior with which behavior analysts have worked are passive refusal, head turns, and elopement from the feeding area. The most common intervention techniques used by BCBA[®]s when working with feeding problems are shaping and graduated guidance. BCBAs[®] work most often with occupational therapists and speech-language pathologists when providing feeding-related services. We conclude by providing recommendations to equip behavior analysts to better manage feeding cases.

Keywords: Pediatric feeding disorder; Food refusal; Food selectivity; Survey

Introduction

Pediatric feeding disorders are diagnosed when a child does not consume enough calories to maintain weight or to meet nutritional needs. Current research suggests that 25-45% of typically developing children and as many as 80% of children with a developmental or intellectual disability exhibit some form of feeding difficulty during their developmental years [1]. Two common types of feeding difficulties are food selectivity and food refusal. Food selectivity is characterized as a failure to meet recommended nutritional needs due to a limited variety of food acceptance. Children who present with food selectivity typically consume a limited number of foods, most of which are high in sodium, fats, and/or sugar [2]. Food refusal is characterized as a failure to meet recommended nutritional needs due to a limited volume of overall food consumption [2]. These feeding concerns often require some form of specialized behavioral assessment and intervention. Highly specialized feeding treatments such as Escape Extinction (EE) have been shown to be effective to increase food variety and amount [3,4].

Given the effectiveness of behavioral interventions to address feeding concerns and the relative commonality of feeding concerns among individuals with intellectual and developmental disabilities, some behavior analysts routinely conduct assessment and treatment of feeding problems in their practice. Others, however, have little training and experience with feeding related issues, and therefore may refer feeding cases to behavior analysts with experience or to other professionals.

Unfortunately, little is known about the specific types of behaviors that behavior analysts most often address in the context of assessing and treating feeding concerns, the interventions they most often use to address these concerns, and the extent to which they work as a member of an interdisciplinary team when treating feeding cases. In other words, no data exist on practicing behavior analysts' activities with respect to the assessment and treatment of feeding problems. This information might be helpful in guiding behavior analytic curricula in universities, the content of Continuing Education (CE) opportunities, and on-the-job training for practitioners who are likely to encounter pediatric feeding cases. Thus, we conducted a survey to investigate practicing behavior analysts' experience with pediatric feeding concerns. We gathered information on a) the specific types of inappropriate mealtime behaviors with which Board Certified Behavior Analysts (BCBAs[®]) have worked; b) interventions BCBAs[®] have used to treat pediatric feeding problems; and c) the types of multidisciplinary involvement BCBAs[®] have had during pediatric feeding treatment.

Method

Participants

Participants in this study included BCBAs[®] and Board Certified Behavior Analysts-Doctoral (BCBA-Ds[®]) professionals registered on the Behavior Analyst Certification Board (BACB[®]) mass email service. Participants responded to an anonymous survey distributed through the BACB[®] directory via an anonymous link

to the host site. The title of the survey was "Clinical Feeding Experience and Practice Survey." The survey was distributed to certificants living in the United States of America. Certificants who noted their primary clientele age group as infants, children, and adolescents were selected. One hundred ninety-two individuals responded to the anonymous link. Of those 192 individuals, 156 completed the survey. However, 5 participants who completed the survey failed to provide informed consent at the onset of the survey, resulting in a total of 151 participants whose data we included in the analysis. Finally, certain answers to pre-selected questions resulted in the termination of the survey for some participants (Table 1). We ended the survey for some in this manner so that the sample data would best represent the specific participant characteristics in which we were interested.

We developed the survey using an online survey creation, distribution, and analysis platform (i.e., Qualtrics™). The survey took approximately 10-15 minutes to complete and all participants were exposed to the purpose, time expectancy, and informed consent form prior to beginning the survey.

Procedure

Anonymous links were distributed to participants via a BACB® mass email message. The email message included the link, introduction to the survey and authors, and a description of a voluntary submission to be entered into a raffle for one of three \$25 gift cards upon completion of the survey. If participants chose to follow the link, they were taken to Qualtrics™ (Version: 4/21) where they were presented with the informed consent form prior to answering the survey questions. Participants had four weeks following the initial email message date to complete the survey. Participants could complete the survey between March 31, 2021 and April 30, 2021.

Response Measurement and Data Analysis

We calculated the percentage of respondents selecting each answer to each question. We did this by dividing the number of respondents selecting the answer by the total number of respondents who were presented with the question. Some questions prompted respondents to "select all that apply," resulting in a total percentage above 100. The responses of all participants were exported from Qualtrics™ into a Microsoft Excel™ document using a feature on the Qualtrics™ platform.

Results

For the first section of the survey (participant background; data not depicted), a total of 151 respondents' answers were analyzed. If respondents answered that they were not currently providing (or supervising) direct clinical implementation of behavioral treatment with children (up to 18 years), the survey ended. This resulted in a total of 134 respondents' answers included in the calculations for subsequent sections. One-hundred and four respondents (88.74%) held a BCBA® certificate and 16 (10.59%) held a BCBA-D® certificate, with most respondents holding their certificate (39.74%) for 3 to 6 years. Forty-eight (35.82%) had been previously formally trained to provide feeding-related services and 83 (61.94%) indicated they had not been formally trained in feeding assessment and treatment. Most respondents worked in a home-based program (52.24%) or a center-based program (50.75%) at the time of the survey. Most respondents stated that they served eight to 12 clients (33.58%) per month. The ages of the clients served by respondents ranged from two to 19+ years with most participants (56.72%) serving children five to eight-years-old. These percent-

ages may not sum to 100 because some respondents left some answers blank.

For the remainder of the survey (Table 1), respondents were eliminated from the survey if they answered "yes" to the following question, "Do you currently work in an intensive pediatric feeding clinic?" We eliminated respondents working in intensive pediatric feeding clinics because their answers were likely to be different from the average BCBA®, since intensive pediatric feeding clinics serve individuals with the highest severity of feeding disorder and we were interested in responses from behavior analysts working outside of these intensive settings. Three respondents answered that they were currently working in an intensive pediatric feeding clinic and two respondents left this answer blank. Thus, five (3.73%) respondents were removed following this question, leaving a total of 129 respondents for this section. Of the 129 respondents, 123 stated they had treated a client for a feeding/eating concern. Of the most commonly treated feeding concerns, respondents selected increasing diet variety (91.87%) with treatment of inappropriate mealtime behavior second (56.91%), followed by increasing dietary volume (46.34%)

Because the next questions involved current feeding clients, we removed thirty participants (23.25%) because they had not treated a client with a feeding protocol in the past 12 months. This resulted in 99 participants for the remainder of the survey. Seventy-one respondents stated they had one to three clients (71.71%) with feeding protocols in the past 12 months. Of the inappropriate mealtime behaviors that participants served, the three most common concerns addressed were passive refusal (i.e., not engaging with food in the absence of any additional inappropriate behaviors; 77.77%), head turns (i.e., turning head more than 45 degrees away from bite presentation; 76.76%), and elopement from eating surface (i.e., child moving more than 3 feet from the eating surface; 75.75%; (Figure 1).

In terms of assessment and intervention procedures, eighty-eight (88.88%) respondents had conducted a preference assessment with food items in the past, with most participants conducting a multiple stimulus without replacement (70.45%) assessment. When asked if they had ever conducted an experimental or functional analysis (FA) of inappropriate mealtime behavior, 40 (40.40%) said "yes." The most common feeding interventions that respondents used to treat feeding concerns were shaping (79.79%), graduated guidance (74.74%), differential reinforcement of alternative behavior (68.68%), and the high-probability sequence (55.55%; (Figure 1). Twenty-nine (29.29%) participants reported having no outside professionals participating in or assisting with the feeding treatment. Of those respondents who reported an outside professional involved in therapy, a speech-language pathologist (50.50%) and an occupational therapist (45.45%) were the most common (Figure 1). Seventy-three (73.73%) participants had sought support from professionals outside of behavior analysis (e.g., pediatrician, dietician) prior to intervening on a feeding concern, and 15 (20.55%) participants stated that the non-behavior analytic professional consulted for the entire duration of the feeding intervention. Of the participants who had support from a non-behavior analytic professional, 46.58% stated that the professional was helpful, and that the information learned would be useful for future feeding cases.

Table 1

	n	%
n=134		
1) Have you ever been trained in an intensive feeding program?		
Yes	48	35.82
No	83	61.94
2) Do you currently work in an intensive pediatric feeding clinic?		
Yes*	3	2.24
No	129	96.27
n=129		
3) Have you ever treated a client for any feeding/eating concerns (e.g., pace of eating, IMB, pickiness)?		
Yes	123	95.35
No	6	4.65
If yes, what types of feeding/eating concerns have you addressed in your clinical practice (Select all that apply)?		
IMB	70	56.91
Increase Variety	113	91.87
Chewing Skills	37	30.01
Increase Volume	57	46.34
Decrease Volume	17	13.28
Pace of Eating	72	58.54
Other	15	12.19
4) On average, of the clients you served in the past 12 months, how many clients had a feeding/eating concern?		
1-3	71	55.04
4-7	24	18.6
8-12	3	2.33
13-20	1	0.77
Have not had a feeding concern in past 12 months*	30	23.26
n=99		
5) What types of inappropriate mealtime behavior do you see in your practice? (select all that apply)		
Elopement from eating surface - child moving more than 3 ft from the eating surface (e.g., kitchen table)	75	75.75
Expels -removing food from mouth following bite acceptance (forcefully or passively)	70	70.7
Aggression -forceful contact of child's hand with any part of feeders body from a distance of 6 inches or greater	50	50.5
Head Turns - turning head more than 45 degrees away from bite presentation	76	76.76
Negative Vocalizations during mealtime - onset/offset of 3 seconds with negative affect	74	74.74
Passive Refusal - does not engage with food in the absence of any additional inappropriate mealtime behavior	77	77.77
Swatting - child's hand makes contact with feeders' hand/utensil	69	69.69
Self-Injurious Behavior - contact of a child's hand with force, against another part of their body from a distance of 4 inches or greater	34	34.34
Other (Please Specify)	4	4.04
6) Have you ever conducted a preference assessment for food preference?		
Yes	88	88.88
No	11	11.11
If yes, which type of preference assessment have you conducted (Check all that apply)?		
Free Operant	55	65.91
Multiple Stimulus with Replacement	34	38.64
Multiple Stimulus without Replacement	62	70.45
Paired-Stimulus	53	60.23
Other	0	0
7) Have you ever conducted a functional analysis on inappropriate mealtime behavior?		

Yes	40	40.4
No	59	59.59
8) In the past 12 months, what types of behavioral interventions did you use to treat feeding/eating concerns? (check all that apply)		
Differential Reinforcement of Alternative Behavior	68	68.68
Non contingent Reinforcement	43	43.43
Graduated Guidance	74	74.74
High-P Sequence	55	55.55
Shaping	79	79.79
Tx Package with EE	31	31.31
Tx Package without EE	25	25.25
Non removal of the Spoon	24	24.24
Other	3	3.03
9) In the past 12 months, did any of your feeding intervention programs include participation with other professionals? (check all that apply)		
None	29	29.29
Dietician	10	10.1
Nutritionist	14	14.14
Occupational Therapist	45	45.45
Speech-Language Pathologist	50	50.5
Pediatrician	29	29.29
Psychologist	9	9.09
10) Have you ever obtained support from outside professionals (e.g., pediatrician, dietician) prior to intervening on a child's feeding concerns?		
Yes	73	73.73
No	26	26.26
If yes, did the outside professional consult with you during the duration of the feeding treatment?		
Yes	15	20.55
No	35	47.95
Yes, for at least 50%	23	31.51
If yes, did the professional offer additional directions for future feeding therapy (e.g., target foods)		
Yes	34	46.58
No	35	47.95
11) Have you ever referred a client to an outside source to address feeding concerns?		
Yes	67	67.67
No	32	32.32

*If response was selected, the survey ended for the participant.

Discussion

We conducted a survey to gather information on behavior analysts' experience with pediatric feeding problems. The results suggest that the most common behaviors encountered by behavior analysts when working with pediatric feeding cases are passive refusal, head turns, and elopement from the feeding area. The results also show that the most common intervention techniques used by BCBA[®]s when working with feeding cases are shaping and graduated guidance. Finally, regarding work with other disciplines, BCBA[®]s reported that they work most often with occupational therapists and speech-language pathologists when providing feeding-related services. To our knowledge, this is the first attempt at gathering information from practicing behavior analysts on pediatric feeding experience and practices.

As noted above, this information might be used to inform

the curriculum in some behavior analytic university degree programs. For example, fieldwork instructors might include exposure to children exhibiting the most common types of feeding-related problem behaviors, as described in this survey. The information derived from this survey might also be useful for the development of CE courses. For example, CE courses highlighting how speech-language pathologists and occupational therapists might work in collaboration with behavior analysts to treat pediatric feeding disorders would be useful.

Of course, the most commonly used interventions may not necessarily be the most appropriate. Intervention selection should be empirically based. Interestingly, EE, the most empirically supported behavior analytic intervention for pediatric feeding problems, was not among the most commonly implemented behavioral procedures. Only 31% of respondents in this survey indicated that they had used EE with a feeding case

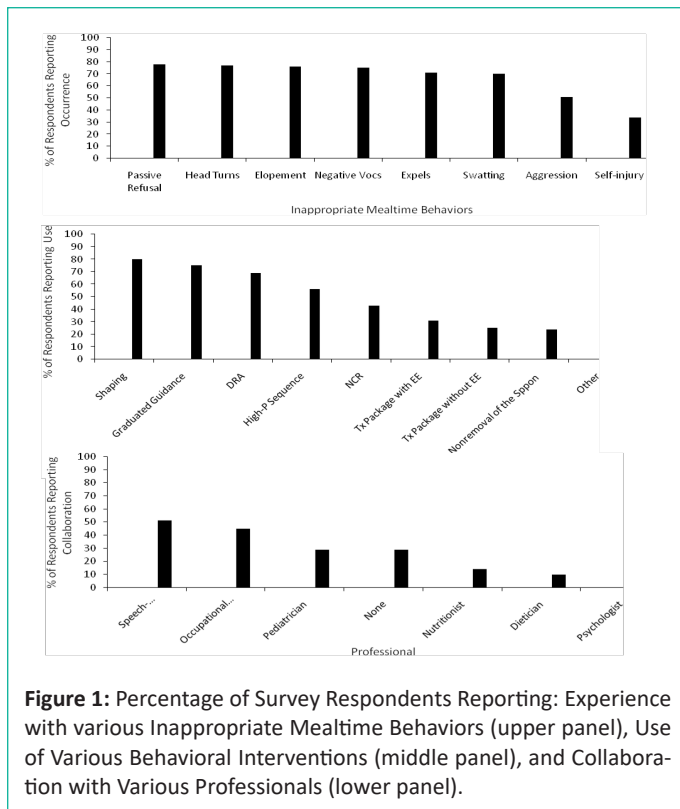


Figure 1: Percentage of Survey Respondents Reporting: Experience with various Inappropriate Mealtime Behaviors (upper panel), Use of Various Behavioral Interventions (middle panel), and Collaboration with Various Professionals (lower panel).

within the past 12 months. This may be because practicing behavior analysts typically see less severe feeding cases for which EE may not be necessary. However, it is also possible that EE is necessary in at least some of these cases, but behavior analysts are not well trained to use it or are reluctant to use or even suggest it due to social validity concerns.

In fact, less than half of survey respondents (43.41%) indicated they would be comfortable implementing the behavioral interventions that currently meet the criteria to be considered well established according to the American Psychological Association's Tasks Force on Promotion and Dissemination of Psychological Procedures and the Society for Pediatric Psychology guidelines (i.e., EE, differential reinforcement of alternative behavior, and physical guidance of self-feeding behavior; [9]. Based on these data, graduate programs in behavior analysis should focus on exposing students, particularly those interested in pediatric feeding disorders, to these intervention techniques.

We have three recommendations to better equip behavior analysts to assess and treat pediatric feeding concerns. Although these recommendations may not be immediately apparent from survey results, we believe the results do indirectly highlight these issues. First, we recommend that all behavior analysts adopt a multidisciplinary approach when working with feeding cases. We cannot emphasize this enough. Other researchers have also recently called for an increased focus on multidisciplinary teams when managing pediatric feeding disorders [5,6]. Due to the myriad causes and often complex medical histories of individuals with feeding concerns, it is important that a multidisciplinary approach is used. Behavior analysts should develop relationships and consult with experts in medicine (e.g., gastroenterologists) and nutrition when working on feeding cases.

Second, as noted above, we recommend that university-based training programs incorporate feeding-related topics and examples into their coursework on behavioral assessment and behavior change techniques. This enhanced coursework should be paired with or followed by fieldwork opportunities so that

students receive hands-on training and experience in assessing and treating feeding concerns. Also, experts in the behavioral assessment and treatment of feeding disorders should offer more CE opportunities for practicing behavior analysts. Of course, adequate supervision of these experiences would be required.

Finally, we recommend that all behavior analysts become familiar with and adhere closely to the Ethics Code for Behavior Analysts when it comes to working with clients who present with pediatric feeding concerns. BACB® ethical code 1.02 – Boundaries of Competence, seems most relevant here. This code says that behavior analysts should only work in areas or topics for which they have had training and are competent.

One limitation of our survey is that we cannot clearly determine the percentage of behavior analysts who have worked with a feeding disorder based on these data. Although we asked this question and 93% of respondents indicated they had worked on a feeding case, these data are likely biased because the title of our survey indicated the survey was about pediatric feeding experience. Future research should address this. A second limitation of this study was our total number of participants. Although 151 participants initially completed the survey, data from only 99 participants were used for most of the study (following exclusionary questions). Future research should use a larger sample. Finally, the scope of our survey was focused and limited; future surveys should gather additional information related to behavior analysts experience with feeding cases.

Conflict of Interest Statement

We (the authors) have no conflict of interest to report during the conduct of this study.

Data Availability Statement

Data from this study not depicted in the manuscript are available from the authors.

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