THE EFFECTS OF USING BEHAVIORAL SKILLS TRAINING TO TEACH PARENTS TO IMPLEMENT ESCAPE EXTINCTION PROCEDURES IN THE TREATMENT OF PEDIATRIC FEEDING DISORDERS

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ABSTRACT

The current study evaluated the effects of a Behavioral Skills Training (BST) package on parental implementation of escape extinction in a feeding clinic. Three parents of children enrolled in a clinic-based three-week intensive feeding disorder treatment program participated. The goal of the current study was to improve the already existing parent training component of the clinic's program by utilizing BST to teach the participants critical skills needed to implement the feeding interventions at home. The BST package included verbal instruction, modeling, and role play with feedback. Generalization probes were conducted during parent-child feeding trials. A multiple baseline across behaviors design demonstrated the effectiveness of the BST package for all participants: percentage of steps implemented correctly increased to high levels for each skill. This study was limited by aspects of the experimental design and lack of generalization data. Future research should aim to close the gaps in the feeding disorder literature regarding parent training; additional research is needed in this subject area.

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CHAPTER 1

INTRODUCTION

According to the American Psychiatric Association (2013) feeding disorders affect roughly 25% to 35% of children in the general population, and 40% to 60% of children with developmental disabilities. According to the DSM-V, an avoidant/restrictive food intake disorder (e.g., pediatric feeding disorder) is defined as an eating or feeding disturbance manifested by the failure to maintain nutritional status associated with psychosocial functioning, nutritional deficiencies, significant weight loss, or dependence on non-oral nutritive intake. Effects and complications arising from a feeding problem range from mild to severe, with the most severely affected children experiencing malnourishment, lack of growth, or failure to thrive (Polan et al., 1991). Some of the more common feeding problems in children include inappropriate mealtime behavior, inability to self-feed, food selectivity, failure to advance in texture, food refusal, oral-motor dysfunction (e.g., inability to lateralize tongue, difficulty controlling the jaw, tongue, or lips), aspiration or swallowing disorders, and frequent vomiting during mealtime (Rommel et al., 2003). In the literature, feeding problems (e.g., "picky" eating) are distinguished from feeding disorders in that feeding disorders cause serious problems to a child's health (Kerwin, 1999). Over the years, treatments for severe feeding problems have included behavioral interventions (Babbit et al., 1994), cognitive-behavioral interventions (Singer, Ambuel, Wade, & Jaffe, 1992), individual psychotherapy (Palmer & Thompson, 1976), interactional psychotherapy (Chatoor et al., 1984), and family-oriented interventions (Drotar et al., 1985).

Research in feeding disorder treatment has consistently shown that behavioral interventions are effective in increasing food acceptance more than other approaches such as sensory-based (Babbit et al., 1994; Addison et al., 2012; Piazza, et al., 2003a; Hoch et al., 1994).

For example, Addison et al. (2012) compared the effects of escape extinction plus non-contingent (NCR) reinforcement (e.g., behavioral interventions) with sensory integration therapy in two children admitted to a pediatric feeding disorders day-treatment program. Both children were diagnosed by an occupational therapist as having a sensory-based feeding disorder. A multi-component and reversal design were used to compare levels of bite acceptance and rates of inappropriate mealtime behavior across three conditions: escape, escape plus sensory integration, and escape extinction plus NCR. Results showed that although both children were diagnosed with a sensory-based feeding disorder, sensory integration therapy was ineffective in producing increases in acceptance, volume consumed, or decreases in inappropriate behaviors. However, increases in acceptance and volume consumed, as well as decreases in inappropriate behaviors were observed in the behavioral intervention condition (escape extinction plus NCR). These results suggest that escape extinction plus NCR was a more effective solution to address inappropriate or problematic mealtime behavior (Piazza et al., 2003a) compared to a sensory-based approach. Despite these results, there were two noted limitations. One limitation of the Addison et al. (2012) study was the possibility of sequence effects: escape extinction plus NCR was always implemented following the sensory integration condition. Another limitation was the severity of the child's feeding disorder and the age of participants; future research should investigate the use of older participants with more severe feeding disorders.

Behavioral Approach to Feeding Disorder Treatment

Despite the adverse effects of feeding disorders on children's health, little is known about the origin or etiology (Kerwin, 1999). However, extensive behavioral research has been conducted on the environmental variables that maintain food refusal, primary through conducting functional analyses of the behavior. Although analyses are not typically conducted prior to clinical treatment (Saini et a., 2019), research that has included these analyses commonly show that children with pediatric feeding disorders engage in inappropriate mealtime behaviors to escape or avoid meal time/ non-preferred foods (Piazza, et al., 2003b). However, these behaviors may also be influenced by multiple environmental contingencies such as parent attention or access to preferred tangible items. Borrero, et al. (2010) conducted descriptive analyses of 25 children who were admitted to an intensive program for severe food refusal to determine if the escape consequences commonly delivered during functional analyses were delivered in meals conducted by the parents. Results showed that not only escape, but attention as well, were the most frequent parental responses to food refusal. The results also showed that caregiver responses to refusal behaviors may differ depending on the topography of the behavior. For example, parents were more likely to provide attention following emesis or aggression than negative vocalizations. A limitation of this study was the setting in which it was conducted; the clinic setting may have altered the parents' behavior by changing the way they typically responded to refusal behaviors as compared to a natural setting.

Given that escape or avoidance of eating often maintains a feeding disorder, escape extinction is likely the most effective behavioral intervention used to treat food refusal. Hoch, Babbitt, Coe, Krell, & Hackbert (1994) used escape extinction to increase acceptance/oral intake volume and decrease negative vocalizations in two children diagnosed with food selectivity. The authors used a procedure called contingency contacting in which the spoon remained at the child's upper lip until the bite entered the child's mouth, therefore preventing escape from the bite of food. More commonly, this is known as non-removal of the spoon (Kerwin, 2003). All inappropriate behaviors were either ignored or blocked. Results of the study showed that following the implementation of non-removal of the spoon (contingency contacting), acceptance rapidly increased as well as grams consumed, and negative vocalizations and refusal behaviors decreased for both participants. When the intervention was withdrawn, all behaviors and grams consumed returned to baseline levels (Hoch, Babbitt, Coe, Krell, & Hackbert, 1994). Following re-introduction of the intervention, similar data patterns emerged (i.e., acceptance and grams consumed increased, and negative vocalizations and refusal behaviors decreased). An extinction burst occurred in the initial phase of treatment for both participants. Although the refusal behaviors decreased to acceptable levels prior to discharge, there are no follow up data on parental feeding or meals at home.

In addition to the use of escape extinction, positive reinforcement may be used to increase appropriate mealtime behaviors (i.e., acceptance, swallowing, etc.); however, reinforcement alone may not be effective (Piazza, Patel, Gulotta, Sevin, & Layer, 2003). Piazza, Patel, Gulotta, Sevin, & Layer (2003) used a multi-element and reversal design to evaluate the effects of escape extinction and positive reinforcement both alone and combined, on the increased consumption of food in children with feeding disorders. Participants were four children admitted to an intensive feeding program for chronic food refusal. The study examined four treatment conditions; (a) escape baseline, (b) Differential Reinforcement of Alternative behavior (DRA) for mouth clean plus escape, (c) escape extinction alone, and (d) DRA plus escape extinction. In the authors' study, non-removal of the spoon was used in escape extinction procedures. For all participants, the authors found positive reinforcement alone to be ineffective in increasing oral volume. When escape extinction was implemented, consumption increased regardless of whether DRA was utilized. However, the combined effects of escape extinction and DRA reduced the intensity and frequency of refusal behaviors (hitting, swatting, head turning), and negative vocalizations, and increased acceptance as compared to the other conditions. A limitation of this study is that data were not reported for any behaviors other than acceptance, refusal behavior, and negative vocalizations. It is unknown if all topographies of food refusal (e.g., packing, expulsion, emesis, gagging) were decreased with the use of escape extinction (Sevin et al., 2002).

Mentioned in previously described studies, escape extinction with DRA is likely a necessary component in behavioral interventions used to treat feeding disorders. Escape extinction procedures typically consist of non-removal of the spoon (NRS), planned ignoring of inappropriate behaviors, blocking responses, and re-presentation (Hoch, Babbitt, Coe, Krell, & Hackbert, 1994; Kerwin, 2003; Piazza, Patel, Gulotta, Sevin, & Layer, 2003). During an intensive program, trained therapists are responsible for carrying out feeding treatment protocols in a clinic or hospital setting (Siverling et al., 2012). Upon discharge from the program, caregivers become responsible for providing most meals to their children and therefore are expected to continue implementation of the feeding intervention in the home (Siverling et al., 2012). If the protocol developed during the intensive program is not consistently implemented at each meal, behavior change will not be maintained. To date, limited studies have investigated the long-term outcomes of feeding disorder behavioral treatment, perhaps due to insufficient parent training for implementing protocols that include escape extinction. Lack of parent training is a significant barrier in the maintenance of food acceptance long-term. In the literature, descriptions of parental training procedures are limited.

Parent Training in Feeding Disorder Literature

Escape extinction protocols including non-removal of the spoon (NRS) are difficult for caregivers to implement in the natural environment due to the high intensity of refusal. Furthermore, no studies to date have included escape extinction in the form of NRS as part of the training package for parents; however, a few studies have taught parents to implement other behavioral interventions aimed to decrease food refusal. Tarbox, Schiff, and Najdowski (2010) utilized a less intrusive escape extinction procedure, "non-removal of the meal (NRM)" to treat a three-year-old male with autism who exhibited severe food selectivity. Procedures were implemented by his parent in the home during regularly scheduled meal times, specifically, lunch and dinner. The authors utilized an ABAB design with brief reversal to demonstrate effectiveness of the parental-implemented NRM procedure. During treatment phases, the parent was given verbal instruction on how to implement rules for the meal. The parent placed the meal in front of the child and stated the contingencies every 10 min: (a) if the whole meal was consumed, the child earned access to preferred toys and could leave the table; (b) if the meal was not consumed, the child remained at the table until bed-time and would be presented with the same meal for breakfast, lunch, etc. until it was consumed. If the child did not consume his entire meal before an activity that could not be rescheduled (such as school), upon his return home, he would be seated at the table again and presented with the same meal. Feedback was delivered to the parent in the form of praise and behavior corrections during each of the 26 intervention meals. Results showed that following the parental-implemented NRM, the percentage of meal consumption increased immediately and remained at a high level; increases in volume were also noted, as well as decreases in meal duration. Limitations of this study included a small sample size (only one participant) and limited description of parental training procedures (e.g., the composition and form of behavior corrections); future studies should evaluate the effectiveness of parental training procedures on parent behavior as well as their child's behavior.

For many caregivers, the procedures of NRM protocol may be aversive. It would require the parent to restrict access to all other foods and keep the child at the table until the meal was consumed, which could be days. Alternatively, Werle, Murphy, and Budd (1993) systematically evaluated the effects of behaviorally-based parent training that did not include NRM, implemented in the child's natural environment (e.g., home). Participants were three males with feeding disorders, aged 21 to 54 months and their mothers; all assessments and training sessions took place in the family's home. Parent training began with verbal instruction focused on the child's nutrition and suggestions on how to introduce new foods in small quantities. Parents were then taught contingent attention skills: providing prompts, delivering reinforcement, utilizing planned ignoring of refusal behaviors, providing behavior corrections, and blocking the child's attempts to leave the table. Feeding interventions were taught via verbal instruction, discussion, handouts, role play, rehearsal verbal feedback after meals, and periodic video feedback. A non-concurrent multiple baseline design was utilized across parent-child dyads to evaluate the effects of the behavioral training and subsequent child's behavior. Results showed the behavioral training package to have a moderate effect on two of the three parents' behavior, with a minimal effect on the third parent's delivery of reinforcement and prompting; concurrently, a moderate effect on food acceptance and ingestion was observed for all three children. This study was limited by a small sample size and lack of typical escape extinction procedures (typical escape extinction procedures include non-removal of the spoon and re-presentation). Future research may investigate the effects of behavioral training on parental-implementation of typical escape extinction procedures; utilizing NRS or re-presentation procedures may have increased the effectiveness of the feeding intervention on the children's behavior.

Escape extinction procedures are likely to be aversive to some parents due to the high frequency, intensity, and duration of their child's refusal behavior. Escape extinction also requires planned ignoring of inappropriate mealtime behaviors including emesis, gagging, aggression, and crying, as well as the re-presentation of bites after they have been expelled from the mouth. The use of typical escape extinction procedures in the previously mentioned study may have produced a more significant behavior change, therefore reinforcing the parents' behavior and subsequently increasing delivery of attention and appropriate prompting strategies.

Mueller et al. (2003) evaluated four different parental training packages that contained components from the previously mentioned study conducted by Werle, Murphy, & Budd (1993). Mueller et al. (2003) evaluated the effect that each training package had on parental implementation of feeding protocols. In the first training package, parents were exposed to baseline conditions (written protocols), verbal instruction, therapist modeling, and rehearsal. For the remaining three training packages, parents were exposed to combination of different components from Study 1. For example, some parents were exposed to written protocols and verbal instruction only, some parents were exposed to written protocols, verbal instruction, and rehearsal (but no modeling), etc. Results showed that each parent training package presented resulted in moderate to high treatment integrity of parent feeding, suggesting that a multi-component training package may not always be necessary. However, the authors did not account for the variability in demographics (e.g., age, education level) as well as the number of participants in each study. The multi-component training package introduced in Study 1, was the most comprehensive, and although the authors did not specifically identify the training package as BST, most components are the same.

Behavioral Skills Training

BST is a procedure used to teach skills to a variety of populations using verbal instruction, modeling, rehearsal, and feedback (Miltenberger, 2015). In a BST package, instructions set behavior expectations by describing the appropriate behavior to the learner in sufficient detail and in a way that is easily understood. Following the period of instruction, the correct behavior is modeled for the learner: the learner observes the model's behavior and then imitates the model. During rehearsal, the learner is asked to demonstrate the skill previously taught. This provides an opportunity for the teacher to reinforce appropriate application of the skill and correct any errors that the learner may make during implementation. The process of providing reinforcement for correct responses and behavior corrections for errors is defined as feedback. Feedback may be delivered verbally or visually; regardless of the delivery method, feedback is a crucial component of a successful training program.

BST is most popular in the organizational behavior management field regarding staff training (Parsons & Reid, 1995; Sarokoff & Sturmey, 2004), but it has also been used with a variety of other populations including parents (Stewart et al., 2007). BST has been shown to be effective in teaching skills to parents such as managing non-compliance and aggressive behavior using similar techniques used in feeding treatment (Drifke, Tiger, & Wierzba, 2017; Miles & Wilder, 2009; Sawyer et al., 2015). Miles and Wilder (2009) assessed the effectiveness of a BST procedure used to teach guided compliance strategies to caregivers of children who exhibited non-compliant behavior. Contingent on non-compliant behavior, three caregivers were taught to use gradually intrusive prompts until the child complied with the demand. Following baseline sessions, each parent was provided with verbal instruction, modeling of the guided compliance procedure, and rehearsal with the child. Each component of the training package, with the exception of baseline, included vocal or graphical feedback. Following rehearsal, a post-training phase was implemented during which the participant received brief feedback on the components of the previous session and their current performance was evaluated; if an error was made, no additional training (modeling, rehearsal) was conducted. Three to six weeks following mastery of the post-training phase, generalization probes were conducted in the natural environment. A multiple baseline across participants design demonstrated the effectiveness of the BST procedure: all three participants maintained correct performance of the skill through all phases including generalization. This study was limited by the lack of data on the children's non-compliant behavior. Future studies should investigate the decreasing trends in the children's non-compliance while simultaneously collecting data on parental acquisition of this procedure.

Sawyer et al. (2015) evaluated the effects of a BST package used to teach three parents of children that exhibited challenging behavior to implement contingent reinforcement, planned ignoring, and redirection. Following general BST on the implementation of these "parenting skills", direct observations and parental interviews indicated problematic routines in the home environment where children demonstrated the highest intensity of challenging behavior. These routines were then used to assess generalization of "parenting skills" to the home environment. Parents were taught to identify the occurrence of a child's target behavior and then implement a particular skill or part of a skill (e.g., skill attempts- reinforcement, planned ignoring, redirection) contingent on the occurrence of the target behavior. Target behaviors included minor inappropriate behaviors such as yelling, whining, and flopping to the floor as well as serious inappropriate behaviors such as aggression and elopement. The BST package used in parent training consisted of verbal instruction, modeling, rehearsal, and feedback for each skill. A multiple baseline design across participants was used to evaluate changes in the children's challenging behavior as well as parental skill attempts and correct usage of skills. The authors found that parenting skills generalized to the home environment for all three participants. Caregivers successfully learned to identify the occurrence of their child's problem behavior and use the parenting skills taught during training with integrity. In addition, for all children, challenging behavior demonstrated during daily routines was reduced following caregiver training. Despite success, this study was limited by the lack of maintenance and follow-up data collected on both the children's and parents' behavior following completion.

Regardless of the skill being taught, BST is typically composed of the elements described in the above studies. Drifke, Tiger, and Wierzba (2017) investigated whether the same acquisition rates would be achieved when providing only certain components of BST. The authors sought to identify the most effective and high priority elements of a BST teaching package in an effort to promote high procedural fidelity in parental implementation of a three-step prompting procedure with differential reinforcement (DRA). Three parents of children with noncompliant, escape maintained behavior participated; each parent nominated tasks in which their children displayed the highest intensity of non-compliance, ranging from academic to self-care tasks. Following baseline, the authors used BST to teach parents to implement a three-step prompting procedure with DRA for each task. Written instructions, modeling, and feedback were introduced both consecutively and collectively (Drifke, Tiger, & Wierzba, 2017). Results showed that both written instructions and written instructions with modeling (no feedback) resulted in improved implementation fidelity; however, no participants achieved mastery for any task. Mastery was achieved only when parents experienced the full BST package: written instructions, modeling, and performance feedback. During generalization probes, the authors noted decreased treatment fidelity for one parent; subsequently, the participant's child demonstrated increased noncompliance and challenging behavior in the home setting. The authors suggested that in order for optimal levels of procedural fidelity to be maintained, follow-up support may be necessary after the initial training is conducted.

The aforementioned studies concluded that BST is an effective procedure used to teach a variety of skills to parents and caregivers. In the feeding disorder literature, there are limited studies assessing both parent training in general as well as the use of BST to teach skills utilized in typical treatment protocols such as NRS. One of the few studies evaluating the effects of a BST package on parental implementation of escape extinction in the feeding disorder literature was conducted by Siverling et. al. (2012). The authors proposed a training package for parents and evaluated the effects on both parent and child's behavior. Three mothers and their children with Autism Spectrum Disorder (ASD) participated; prior to this study, all parents had unsuccessfully attempted to implement a reinforcement-only treatment package in the home in which access to preferred food was contingent on access to non-preferred foods. Since the reinforcement-only treatment package was ineffective, parents were trained in escape extinction and other feeding interventions. Sessions were conducted in the family's home. The treatment package consisted of escape extinction, repeated taste exposure, and prompt fading. For this study, escape extinction in the form of non-removal of the spoon was not used; alternatively, escape extinction consisted of planned ignoring of disruptive behavior, re-presentation of a bite when it was expelled, and repeated presentation of novel foods. Following baseline probe meals, the authors' parent training package consisted of a verbal explanation of procedures, modeling the appropriate behavior, rehearsal with their child, and feedback delivered by the experimenters. A multiple baseline across participants was used to evaluate the effects of the BST package. Results showed that following the initial training procedures, all mothers maintained moderate to high levels of correct performance in post-training and follow-up; additionally, all children demonstrated an increase in bites accepted, although data remained at a low level. This study was limited by the child participants' low level of mean bites accepted during all phases; this may have been due to the time-based format of treatment sessions (i.e., the number of bites presented varied depending on the latency of bite acceptance and duration of chewing). Future studies may investigate the use of BST to teach other components of escape extinction including NRS and blocking inappropriate responses such as hitting, swatting the spoon, etc.

The Current Study

Long-term success of feeding disorder treatment outcomes depends on correct implementation of the protocol by caregivers. If a behavior change is to maintain outside of a clinical environment, the behavioral procedures must be acceptable to the parents and they must be capable of implementing them outside of the contrived environment (Tarbox, Schiff, & Najdowski, 2010). The effectiveness of any applied behavior analytic intervention includes whether the skill generalizes to other environments (Baer, Wolf, & Risley, 1968). In the case of feeding disorders, it is crucial that these skills generalize to home. To ensure that generalization to natural environments occurs, parents and caregivers must be trained to implement feeding protocols. Therefore, the researcher in the current study aimed to plan for generalization by using BST to teach caregivers to implement three critical skills utilized in escape extinction procedures using a multiple baseline across behaviors design- non-removal of the spoon, planned ignoring, and blocking. The purpose of the current study was to evaluate the effects of a behavioral skills training package (verbal instruction, modeling, role play, feedback) on parental implementation of escape extinction in the treatment of their child's feeding disorder.

CHAPTER 2

METHOD

Participants and Setting

The participants were three parents of children with pediatric feeding disorders, admitted into a three-week intensive feeding program at a non-profit clinic in southeastern Pennsylvania. The clinic provides center and community based behavioral services to individuals on the autism spectrum disorder along with behavioral services to other individuals with behavioral challenges. Participation was voluntary and offered to each parent following admission into the program. Participants were selected based on: (a) The parent's ability to be present for every intensive feeding session conducted one hour per day, five days per week, for three weeks; and (b) The protocol established by the feeding team (i.e., treatment procedures must include escape extinction). The first three parents that were offered involvement in the study, met the criteria and agreed to participate. Participant 1 was the mother of an 11-year-old female diagnosed with autism and co-occurring feeding disorder; Participant 2 was the mother of an 18 month old, typically developing child, diagnosed with a feeding disorder; Participant 3 was the mother of a 5 year old, typically developing male with no other diagnosis other than a feeding disorder. No other demographic information (e.g., age, education level, etc.) about the participants was collected.

The study was conducted in a clinic setting. Parent training sessions were conducted in an observation room (with a one-way mirror) attached to the feeding treatment room as well as a conference room located in the clinic. Generalization sessions were conducted in the feeding treatment room. The conference room where initial training occurred was similar to the feeding treatment room and consisted of a Rifton© chair with tray for the child, a chair for the parent to sit in, a table easily accessible for placement of food and toys, and a chair for the feeding therapist. For each training session, the researcher was in the room with the parent. For generalization sessions, only the parent and child were in the room; the primary data collector remained in the observation room. Each daily session was video recorded.

Dependent Variable and Data Collection

The dependent variable in this study was the percentage of steps completed correctly for each trained skill using a treatment integrity checklist. Three skills, or target behaviors, were taught to the participant using a Behavioral Skills Training (BST) package: non-removal of the spoon (NRS), planned ignoring, and blocking. NRS was defined as holding the utensil directly to the child's upper lip until s/he opens her/his mouth wide enough for the food to be deposited if a bite is refused. The utensil remains at the upper lip, following any movement of the child's head with or without a jaw prompt. NRS did not include immediate placement of the utensil at the child's mouth with the prompt "Take a bite." Planned ignoring was defined as the feeder providing no verbal or non-verbal attention at the onset and for the duration of any negative vocalization (e.g., yelling, crying, cursing) or refusal behavior (see below) occurring before, during, or after bite presentation. This included maintaining a neutral facial expression, no vocalizations directed towards the child, and eye gaze diverted to tip of nose or mouth. Planned ignoring did not include verbally responding to negative vocalizations (e.g., "Stop", "Don't hit", "You can do it", etc.), changing facial expression (e.g., frowning, creasing the skin around forehead or eyebrows, squinting, etc.), or making direct eye contact with the child. Blocking was defined as physically preventing a refusal behavior from occurring by matching the resistance of the child. This includes crossing the arms of the child across their chest in an "X" shape and using the feeder's non-dominant arm to block attempts to dislodge the arms from this position using the forearm, bicep, or inside of the elbow. Blocking did not include complete restriction of movement or using closed hands around the child's arms, hands, etc. Additional operational definitions for jaw prompting, refusal behaviors, and negative vocalizations are listed in Appendix A.

The researcher recorded data using paper data sheet and pencil. A procedural fidelity checklist was created for the escape extinction procedures described above: NRS, planned ignoring, and blocking. Trial-by-trial (percent correct) data was taken to measure the correct implementation of each skill. When a skill was utilized by the parent, the observer indicated on the checklist whether the skill was implemented correctly (+). An incorrect mark (-) was indicated if the parent failed to utilize the skill or if the skill was implemented incorrectly. If step was not applicable, the researcher marked "N/A": steps marked N/A were not calculated into the total percent correct. The percentage correct for each skill was found by adding together the total number of components implemented correctly and dividing it by the number of components listed on the procedural fidelity checklist. Since each session was recorded, reliability of measurement was checked by reviewing the video after each session and the researcher collecting session data again.

Interobserver agreement

For IOA data collection, the researcher was the primary observer, while the secondary observer was a graduate student in Temple University's ABA Master's program. Although not specifically feeding related, the secondary observer was trained in observation, data collection, and behavioral principles. The primary observer was the researcher employed by the clinic; therefore, the researcher was familiar with the operational definitions of the target behaviors and had experience in data collection. The researcher's data collection training consisted of verbal instruction, role modeling, in-vivo practice, and feedback as part of their orientation when hired to the clinic. Prior to implementation of the study, practice sessions were conducted to assess the accuracy of the primary and secondary observers' data collection. The primary and secondary observer reviewed videos of prior feeding sessions from the clinic's confidential archive and were instructed to collect treatment integrity data on only the feeder's behavior. A student in the final semester of Temple University's ABA Master's program acted as the secondary observer and collected data simultaneously. Mastery criteria for both the secondary observer was 80 percent or higher agreement with the primary observer across all target behaviors for one 10-bite session. Once it was determined that the primary and secondary observer's data were believable by reaching this predetermined criterion, data collection began.

Exact agreement IOA was calculated for correct implementation of the following procedures: NRS, planned ignoring, blocking for each participant. Exact agreement IOA was calculated by dividing the number of steps in which observers were in exact agreement by the total number of steps in the treatment integrity checklist multiplied by 100, resulting in a percentage of agreement. IOA data were collected randomly across baseline and role play conditions for all participants. IOA was not assessed in generalization conditions to protect the privacy of the participants' children.

For Participant 1 exact agreement IOA was 85% for baseline and role play conditions. IOA for Participant 1 was calculated for 33.33% of bite presentations in baseline conditions (*M*= 100% across behaviors, range: 100%-100%) and 31.11% of bite presentations in role play conditions (*M*= 80% correct across behaviors, range: 60%-100%) for all target behaviors. For Participant 2 exact agreement IOA was 86.36% for baseline and role play conditions. IOA for Participant 2 was calculated for 31.58% of bite presentations in baseline conditions (*M*= 91.67%

across behaviors, range: 75%-100%) and 30.3% of bite presentations in role play conditions (*M*= 80.67% across behaviors, range: 67%-100%) for all target behaviors. For Participant 3 exact agreement IOA was 85.71% for baseline and role play conditions. IOA for Participant 3 was calculated for 33.33% of bite presentations in baseline conditions (*M*= 89% across behaviors, range: 67%-100%) and 33.33% of bite presentations in role play conditions (*M*= 91.67% across behaviors, range: 75%-100%) for all target behaviors.

Procedure

Pre-Training

On Day 1 of the study (and prior to baseline), caregivers were seated behind a one-way mirror to watch escape extinction procedures being implemented by feeding therapists with their child. A brief written description of the escape extinction procedures was provided to each participant during this time. This period of observation lasted no more than 15 minutes. When the 15-minute time limit was reached, the participant was escorted into the training room for baseline sessions.

Baseline

Upon reaching the training room, directly following the pre-training, the participant was given a brief instruction (e.g., “I would like you to feed Jenn based on what you just saw.”). Questions from the participant were deferred (e.g., “Just do your best, we will go over everything later. I just want to see how you do.”). The training room was set up similar to the feeding treatment room. During baseline, the researcher was seated in a Rifton© chair with a tray; the parent was seated in front of the researcher in a chair. The researcher imitated the child’s refusal behavior previously witnessed in the observation room (e.g., screaming, kicking, swatting, putting head down, etc.). The parent was given three bowls of the same color, a spoon, toys, and a timer on the table beside them. The parent was then asked to try to present a bite (with an empty spoon) to the researcher. Data were collected for each bite via a treatment integrity checklist on the parent's implementation of NRS, planned ignoring, and blocking (see Appendix B). No feedback was provided to the participant during baseline sessions; sessions were terminated when at least seven bites were presented to the researcher.

Behavioral Skills Training Package

The first component of the BST package was verbal instruction. During verbal instruction, the researcher explained escape extinction and the rationale for utilizing the intervention. Information was presented to the participant that described the behavioral principles of reinforcement, punishment, extinction as well as the functions of behavior via a Power Point presentation. Following this basic overview, each step of the feeding protocol was explained to the participant using simple language (see Appendix C). The target behaviors (NRS, planned ignoring, blocking) were explained to the participant referencing their child's feeding protocol; the rationale for each target behavior was provided. The duration of verbal instruction was no more than 45 minutes, conducted one time.

Following verbal instruction, the researcher modeled the target behavior for the participant. The participant was seated in a Rifton© chair with a tray, acting as the child; the researcher was seated in front of the Rifton© chair, acting as the feeder. The researcher had three bowls of the same color, a spoon, toys, and a timer on the table beside them. The participant was asked to imitate the child's refusal behavior prior to the start of modeling. Modeling instructions were provided to the participant and researcher for each target behavior to ensure treatment integrity and correct assessment of all relevant skills (see Appendix D for detailed modeling intructions). The researcher placed the spoon at the participant's mouth and said, "Take a bite."

If the "child" (i.e., participant) did not accept the bite, the target behavior was modeled for the participant. Modeling continued for no more than five bites.

Following modeling of the target behavior, the participant engaged in role play with the researcher. Role play occurred under the same conditions as modeling, but with the participant acting as the feeder. In role play sessions, the researcher was seated in a Rifton© chair with a tray, acting as the child; the participant was seated in front of the Rifton© chair. The participant was given three bowls of the same color with the same food in each, a spoon, toys, and a timer on the table beside them. The researcher imitated the child's refusal behavior; role play instructions were followed for each target behavior to ensure treatment integrity and correct assessment of all relevant skills (see Appendix E). The participant placed a bolus of food on a spoon and said, "Take a bite." If the researcher accepted and swallowed the bolus of food within 30 seconds, the feeder should present reinforcement. If the researcher did not accept the bite, the participant was expected to demonstrate the target behavior used in escape extinction. Role play sessions continued until seven refused bites were presented.

During role play, verbal feedback was delivered to the participant by the researcher. Praise was delivered following each successful demonstration of the target behavior. When the participant made an error, the trial was ended, and corrective feedback was delivered immediately. Corrective feedback described the error made and the feeding therapist modeled the correct response while simultaneously providing verbal instruction. Procedural fidelity data were taken during role play trials. After each role play session, performance data were plotted on a handwritten graph and reviewed with the participant, used as another dimension of feedback other than verbal praise or error correction (Alvero, Bucklin, & Austin, 2001). When the participant performed 80-100% of the steps correctly for five consecutive bites, the training was considered complete.

When the participant achieved mastery criteria for all behaviors, generalization probes were conducted for each target behavior. The generalization condition was identical to baseline, except the participant was feeding her child; sessions were conducted in the feeding treatment room. Similar to modeling and role play conditions, the participant placed a bolus of food on a spoon and said, “Take a bite.” If their child accepted and swallowed the bolus of food within 30 seconds, reinforcement was available: reinforcers were determined by clinic staff via forced choice preference assessment prior to the start of the intensive treatment program. If their child did not accept the bite, the participant was expected to implement escape extinction procedures that included the target behaviors taught during training: NRS, planned ignoring, blocking. (Additionally, if their child expelled a bite, the participant was expected to represent the same bite of food). Verbal feedback was delivered after generalization sessions, which is consistent with the clinic’s current practices: in-session feedback was delivered as needed. Feedback on implementation of target behaviors was avoided, unless clinically necessary for the child’s success. Percentage correct data were taken on the accurate implementation of these skills.

Procedural fidelity

Procedural fidelity was assessed for each participant using a checklist (Appendix F) in baseline and intervention phases to ensure accurate implementation of baseline procedures as well as experimental procedures (BST). All sessions were video recorded to assist with procedural fidelity checks (calculating the percentage of steps completed correctly) and IOA. These data were collected by the secondary observer. Procedural fidelity was not assessed in generalization conditions to protect the privacy of the participants’ children.

For Participant 1, procedural fidelity was assessed across 28.57% of bite presentations in baseline for all behaviors (*M*= 95.83% correct, range: 87.5%-100%) and 30.12% of bite presentations during verbal instruction, modeling, and role play conditions for all behaviors (*M*= 93.23% correct, range: 80%-100%). For Participant 2, procedural fidelity was assessed across 36.84% of bite presentations in baseline for all behaviors (*M*= 96.43% correct, range: 87.5%-100%) and 29.41% of bite presentations during verbal instruction, modeling, and role play conditions for all behaviors (*M*= 94% correct, range: 80%-100%). For Participant 3, procedural fidelity was assessed across 28.57% of bite presentations in baseline for all behaviors (*M*= 97.92% correct, range: 87.5%-100%) and 36.37% of bite presentations during verbal instruction, modeling, and role play conditions for all behaviors (*M*= 88.33% correct, range: 80%-100%). IOA on procedural fidelity measures were conducted on 29.17% of all procedural fidelity observations. IOA for procedural fidelity observations (*M*= 90.48% correct, range: 87.5%-100%).

Experimental design

A multiple baseline across behaviors design was used to assess the effects of the behavioral skills training package on the implementation of escape extinction procedures by the participant. Utilizing a multiple baseline across behaviors design eliminated the need for withdraw and could demonstrate a functional relationship between the implementation of the behavioral skills training package and increased procedural fidelity across three target behaviors: NRS, planned ignoring, and blocking. The behaviors targeted in this study were independent but functionally similar (i.e., NRS, planned ignoring, and blocking are similar in complexity).

On Day 1 of the study, participants were exposed to pre-training and baseline conditions prior to implementation of the behavioral skills training package; percent correct data (of a procedural fidelity checklist) were collected. For the first behavior, NRS, at least three stable baseline data points was required prior to the start of intervention; stability criteria was defined as three data points falling within 20% of the median. On Day 1, Participant 1 and 3 achieved baseline stability criteria for NRS and the verbal instruction component of the training package was introduced; modeling and role play for NRS occurred on Day 2 for both participants. For Participant 2, baseline stability criterion was not met until Day 2: when stability was reached for NRS, verbal instruction, modeling, and role play was introduced. Introduction of the behavioral skills training package was staggered in time across behaviors. When behavioral skills training was implemented for NRS, planned ignoring and blocking remained in baseline. After implementation of the training package for planned ignoring, blocking remained in baseline. The training package was implemented in the next tier when at least five data points remained stable within 20% of the median, and baseline data remained stable within 20% of the median in all other tiers. Immediacy of effect was determined by the visual inspection of the data paths and experimental control was demonstrated by the increase in percentage correct following implementation of the training package in each tier.

Social Validity

Social validity was assessed in the form of a questionnaire given to participants' families before treatment began and immediately following the study. The social validity surveys sought to address the severity of their child's problem behavior and treatment goals, appropriateness and complexity of the training package, time required for the study, satisfaction of outcomes, and acceptability of treatment procedures (Appendix G).

CHAPTER 3

RESULTS

Figure 1 depicts the percentage of steps performed correctly for Participant 1 in baseline, treatment, and generalization conditions. For NRS, percentage of steps performed correctly remained stable at zero levels during baseline. Following implementation of the behavioral skills training package, an immediate effect was demonstrated: percent correct immediately increased and remained at moderate to high levels throughout the intervention (*M* = 86.79%, range: 57.14%-100%). During generalization probes, percent correct decreased to moderate levels and was variable (*M*= 68.13% correct; range: 50%-100%). For planned ignoring, percentage of steps performed correctly remained variable at low to moderate levels during baseline before achieving stability (*M*= 31.16% correct; range: 16.67%-40%). Following implementation of the behavioral skills training package, an immediate effect was demonstrated; percent correct remained at a high level throughout the intervention (*M*= 87.14% correct; range: 83.33%-100%). During generalization probes, percentage of steps performed correctly remained at a high level and was relatively stable (*M*= 98.64% correct; range: 85%-100%). For blocking, percentage of steps performed correctly remained at zero levels (*M*= 0% correct) during baseline. Following implementation of the behavioral skills training package, an immediate effect was demonstrated; percent correct remained stable at a 100% throughout the intervention. During generalization probes, percent correct remained at high levels but was variable (*M*= 84.67% correct; range: 80%-100%).

Figure 2 depicts the percentage of steps performed correctly for Participant 2 in baseline, treatment, and generalization conditions. For NRS, percentage of steps performed correctly was variable at moderate to low levels at baseline (*M*= 27.38% correct; range: 0%-42.86%) with a decreasing trend demonstrated in the final three bite presentations. Following implementation of the behavioral skills training package, an immediate effect was demonstrated; percent correct remained at high levels throughout the intervention (*M*= 91.73% correct; range: 80%-100%) with an outlier at Bite 20. During generalization probes, percent correct remained stable at high levels (*M*= 91.8% correct; range: 71.43%-100%): a decreasing trend is demonstrated at Bite 37 and 38, followed by an increase to a moderate-high level. For planned ignoring, percentage of steps performed correctly remained variable at low to moderate levels at baseline before achieving stability (*M*= 35.63% correct, range: 16.67%-50%). Following implementation of the behavioral skills training package, an immediate effect was demonstrated, and percent correct remained relatively stable at a high level throughout the intervention (*M*= 91.73% correct; range: 80%-100%) and generalization probes (*M*= 96.82% correct; range: 85.71%-100%). For blocking, percentage of steps performed correctly remained at zero levels during baseline. Following implementation of the behavioral skills training package, an immediate effect was demonstrated, and percent correct remained at 100% throughout the intervention. During generalization probes, percent correct remained at high levels but was variable (*M*= 95.83% correct; range: 83.33%-100%).

Figure 3 depicts the percentage of steps performed correctly for Participant 3 in baseline, treatment, and generalization conditions. For NRS, percentage of steps performed correctly remained stable at zero levels during the baseline. After implementation of the behavioral skills training package, an immediate effect was demonstrated followed by a steady increasing trend; for Bites 16 - 24, data remained stable at mastery levels (*M*= 91.73% correct). However, during the first generalization probe, percent correct decreased to 66.67% and a decreasing trend was demonstrated for the next two data points (*M*= 51.74% correct, range: 28.57%-66.67%). For planned ignoring, percentage of steps performed correctly remained variable at low to moderate levels at baseline before achieving stability (*M*= 42.78% correct, range: 16.67%-60%). Following implementation of the behavioral skills training package, an immediate effect was demonstrated, and percent correct remained stable at mastery level throughout the intervention (*M*= 98.48% correct; range: 83.33%-100%). Generalization probes for planned ignoring were 66.67%, 60%, and 100% correct respectively (*M*= 75.56% correct; range: 60%-100%). For blocking, percentage of steps performed correctly remained at zero levels during baseline. Following implementation of the behavioral skills training package, an immediate effect was demonstrated, and percent correct remained stable at 100% throughout the intervention. Minimal refusal behavior was demonstrated during generalization probes, and therefore there was no need for blocking to be utilized.

Percentage of nonoverlapping data (PND) for all participants across all behaviors was 100% indicating no overlap of data paths (i.e., vertical distance exists between the data paths in baseline and treatment conditions). Distance between data paths ranged 10 to 100 points on the ordinate axis. Results of the social validity assessments are listed in Table 1. Social validity results confirmed that all participants found the intervention to be effective, procedures to be acceptable, and felt confident in their ability to implement escape extinction at home.

Participant 1

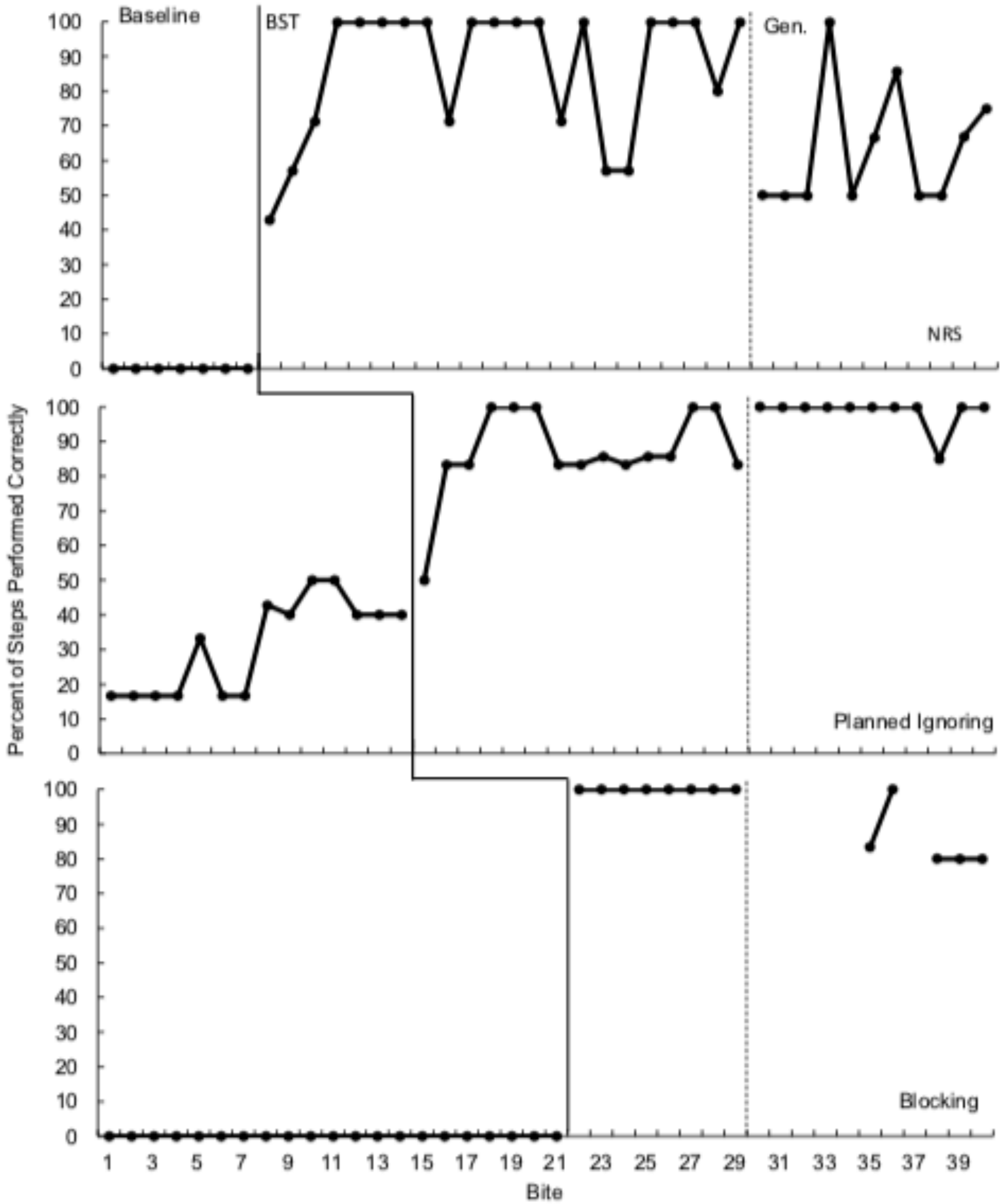

Figure 1. Multiple baseline across behaviors. Percentage of steps performed correctly for Participant 1 in baseline, intervention, and generalization phases.

Participant 2

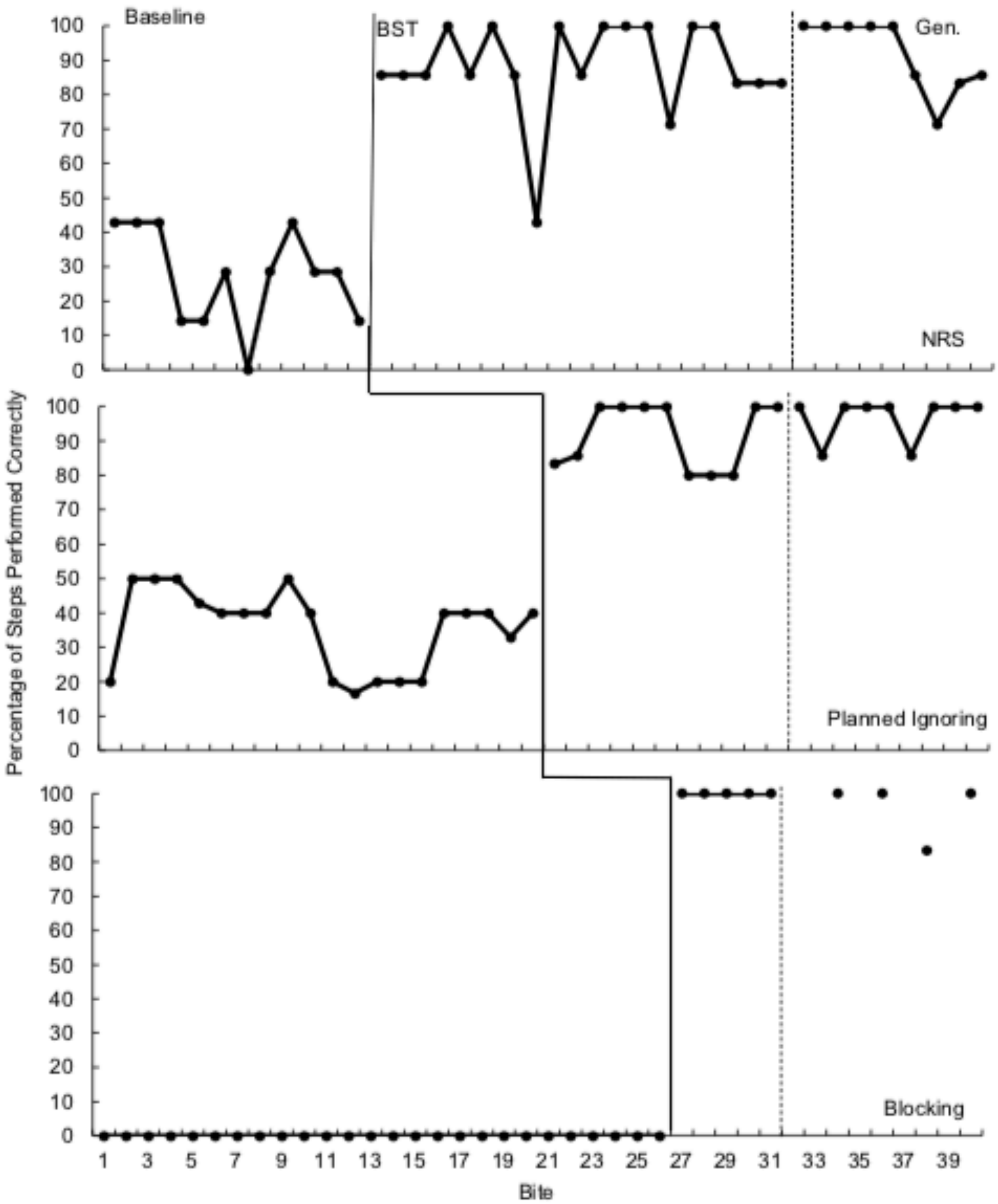

Figure 2. Multiple baseline across behaviors. Percentage of steps performed correctly for Participant 2 in baseline, intervention, and generalization phases.

Participant 3

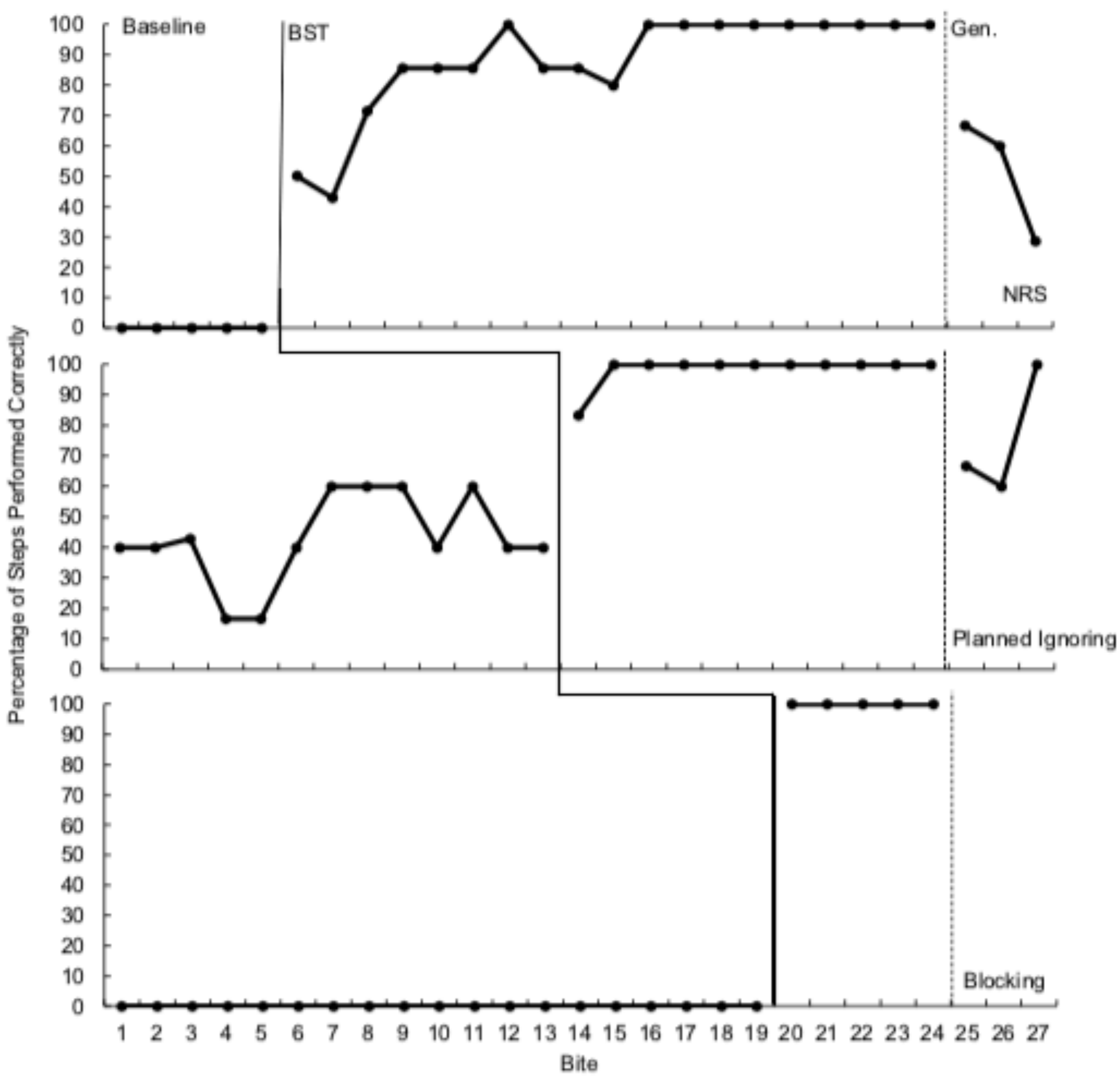

Figure 3. Multiple baseline across behaviors. Percentage of steps performed correctly for Participant 3 in baseline, intervention, and generalization phases.

CHAPTER 4

DISCUSSION

The purpose of the current study was to evaluate the effects of a behavioral skills training package (i.e., verbal instruction, modeling, role play, feedback) on parental implementation of escape extinction in the treatment of their child's feeding disorder. BST was used to teach caregivers to implement three critical skills utilized in escape extinction procedures: non-removal of the spoon (NRS), planned ignoring, and blocking. A procedural fidelity checklist was used to evaluate the percentage of steps performed correctly for each skill; a multiple baseline across behaviors design demonstrated the effectiveness of the intervention for all participants. At baseline, for all participants, percentage of steps performed correctly remained at relatively low levels. Following the introduction of the BST package, an immediate increase in percentage of steps performed correctly was demonstrated for each skill and each participant achieved mastery criteria rapidly.

For Participant 1, during generalization probes, the skills needed to implement NRS did not maintain at high levels (as demonstrated during the role play condition). Generalization data for Participant 1 were variable but remained at a moderate level. Similarly, a decreasing trend was demonstrated for Participant 3 during NRS generalization probes. With the exception of Participant 2, generalization probe data for Participants 1 and 3 maintained at a lower level then what was demonstrated in role play conditions. This decrease may be attributed to the extensive reinforcement history each participant had with their child. For Participant 1, the child was 11 years of age and for Participant 3, the child was 6 years of age. Each child's food refusal suggested that over time, the participants had reinforced their child's escape-maintained behavior and similarly, the parents' behavior of removing the aversive food or providing attention was negatively reinforced by cessation of aversive stimulation (i.e., their child's crying, kicking, screaming, etc.).

Participant 2 not only achieved mastery criteria during role play conditions but maintained at high levels during generalization probes for all behaviors. Unlike Participants 1 and 3, the child of Participant 2 was under two years of age. Therefore, the parent-child dyad had a limited reinforcement history compared to the other two. Another reason for Participant 2's performance may have been the availability of additional reinforcers. At the time of admission to the feeding program, the child of Participant 2 was breastfeeding only: the child did not consume any solid foods or snack items. The Participant's primary goal at admission was to eliminate or greatly reduce breastfeeding. Achieving this goal may have acted as a high value reinforcer for Participant 2 which produced optimal performance in BST and generalization conditions.

Two limitations existed in the generalization conditions of the current study. First, the generalization probes were not true probes: Feedback on target behaviors (NRS, planned ignoring, blocking) after parent-child feeding sessions, were avoided except in instances where the error was detrimental to the feeding protocol, and therefore, the child's success in the program (e.g., parent stopped presenting bites during meal). Second, this study was limited by the lack of generalization data, primarily for Participant 3. During parent-child generalization probes, all children demonstrated minimal refusal. While the skills were being taught to each parent, the children were receiving behavioral treatment for food refusal. Consistent with an extinction burst, all children demonstrated a high frequency and intensity of refusal behavior during the first one to two days of treatment (which was conducted with a clinic feeding therapist) followed by a dramatic decrease. By the time each participant completed BST and started implementing the intervention with their child, their child's refusal behavior had already decreased and maintained at low levels. Clinically, spontaneous recovery is expected when parents begin to implement feeding protocols: Generalization probes were conducted during bites that the child refused. For Participant 3, minimal refusal behavior was demonstrated during parent-child feeding sessions, and therefore no need for blocking to be utilized; additionally, there were limited opportunities to utilize NRS and planned ignoring. Although the feeding clinic conducts follow-up home visits, follow-up data from home mealtimes were not collected for this study. Additional follow-up data would demonstrate the maintenance of participants' skills over time.

Another limitation of this study was the design. Since this study was conducted in a clinic setting, the participants utilized were parents of children enrolled in the clinic's feeding program. A multiple baseline across participants design may have been a more efficient way to demonstrate experimental control. However, if a multiple baseline across participants design was utilized, the participants would have been expected to remain in baseline until stability was reached in the prior tiers and maintained in all others. This would likely cause frustration and confusion for participants. Considering the use of clinic's clients and the limited time frame of treatment (i.e., a two-week treatment evaluation), a multiple baseline across behaviors design was chosen. The limited time frame was also the rationale behind the data points representing a single bite rather than a session of multiple bites. A session of multiple bites would have not only frustrated participants and allowed practice of incorrect techniques, but it would also require some behaviors to remain in baseline for an extended period of time, which is not conducive to the treatment time-frame set by the feeding clinic where the study was conducted.

The first three parents presented with the opportunity to participate, met the criteria and agreed to do so; all three remained in the study for its duration. Future research may include the use of additional participants with demographic data provided (such as age and education level), which was not included in the current study. Additionally, future research should include data on the children's refusal behavior and bite acceptance during both therapist and parent-feeding sessions.

The current study adds to the limited research that exists on parent training in the feeding disorder literature; future research should continue to investigate the use of behavioral skills training (or alternative training protocols) to teach parents to implement feeding protocols. Research has shown that when implementing behavioral interventions, higher levels of treatment integrity are correlated with a decrease in children's problem behavior (DiGennaro, Martens, & Kleinmann, 2007). In escape extinction, if the procedure is not implemented every time, the problem behavior will be intermittently reinforced and therefore will maintain over time and be more resistant to extinction in the future (Cooper, Heron, & Heward, 2007).

In conclusion, often in clinical settings, feeding disorder treatment is primarily conducted by highly trained therapists. However, parents and caregivers must be trained proficiently to implement feeding protocols, as they will be the ones presenting meals at home (Tarbox, Schiff, & Najdowski, 2010). Parent training is crucial in feeding disorder treatment but the research on this subject area is limited. Parents and caregivers must be able to implement the procedures developed in the clinic (where trained therapists are not present) in order to maintain the new learned behavior over time. The purpose of the current study was to evaluate the effects of a behavioral skills training package (verbal instruction, modeling, role play, feedback) on parental implementation of escape extinction in the treatment of their child's feeding disorder. BST was used to teach caregivers to implement three critical skills utilized in escape extinction procedures: non-removal of the spoon (NRS), planned ignoring, and blocking. Following the introduction of the BST package, an immediate increase in percentage of steps performed correctly was demonstrated for each skill and each participant achieved mastery criteria rapidly. This study was limited by aspects of the experimental design and lack of generalization data. Future research should aim to close the gaps in the feeding disorder literature regarding parent training investigating the use of behavioral skills training (or alternative training protocols) to teach parents to implement feeding protocols with fidelity.

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Table 1

Social validity results

	Pre-intervention *M*	**Post-intervention *M***
1. My child's food refusal/ selectivity is severe.	4.33	4.33
2. I am confident that the intervention will increase my child's variety and volume of food.	3.67	4.67
3. I find escape extinction be aversive.	3	1.33
4. I understand all components of treatment.	4	5
5. Procedures were explained to me thoroughly.	4.33	5
6. All of my questions about the course of treatment were answered.	4.67	5
7. I felt comfortable asking the therapist any questions that I had.	5	5
8. I am confident that I will be able to implement treatment at home after the 3-week intensive.	3.67	4.33
9. I feel that the positive impact this will have on my child will outweigh any negatives.	4.33	5
10. I found the intervention to be complex or difficult to understand.		1.67
11. Verbal instructions were given in a clear, concise way that was easy to understand.		4.67
12. It was helpful to have the skills modeled for me prior to trying them myself.		5
13. Role playing with the feeding therapist helped me feel more prepared for when I was expected to feed my child.		5
14. The training package helped me be more confident when implementing the interventions with my child.		5
15. I am confident that I will be able to implement treatment at home with minimal difficulty.		4.33
16. I am satisfied with the outcome.		5

Table 1. Means of participants' ratings on social validity pre- and post-assessments.

Appendix A

Operational definitions

Behavior	Operational Definition
Non-removal of the spoon (NRS)	Holding the utensil directly to the child's upper lip until s/he opens her/his mouth wide enough for the food to be deposited if a bite is refused. The utensil remains at the upper lip, following any movement of the child's head with or without a jaw prompt. Does not include immediate placement of the utensil at the child's mouth with the prompt "Take a bite."
Jaw prompt	The feeder placing their thumb and middle finger on either side of the child's jaw, applying gentle pressure to the mandibular joint. The non-dominant palm faces out, with the child's chin resting on the ridge of the hand. Does not include any instance of hard pressure applied to the face or attempts to open the mouth.
Planned ignoring	At the onset and for the duration of any negative vocalization (e.g., yelling, crying, cursing) or refusal behavior (see below) occurring before, during, or after bite presentation, the feeder provides no verbal or non-verbal attention. Includes maintaining a neutral facial expression, no vocalizations directed towards the child, and eye gaze diverted to tip of nose or mouth. Does not include verbally responding to negative vocalizations (e.g., "Stop", "Don't hit", "You can do it", etc.), changing facial expression (e.g., frowning, creasing the skin around forehead or eyebrows, squinting, etc.), or making direct eye contact with the child.
Blocking	Physically preventing a refusal behavior from occurring by matching the resistance of the child. Includes crossing the arms of the child across their chest in an "X" shape and using the feeder's non-dominant arm to block attempts to dislodge the arms from this position using the forearm, bicep, or inside of the elbow. Does not include complete restriction of movement or using closed hands around the child's arms, hands, etc.
Refusal Behavior	Any occurrence of the child turning his/her body or head in any direction away from the direction of the spoon, or any instance of aggression towards the feeder. Includes pushing the feeders hand away, placing hands over his or her mouth, hitting the feeder anywhere on the body. Does not include movement of the head that is a nonverbal response to a yes or no question, contact with the feeder to give a high five, moving in the chair to change uncomfortable position or instructed to do so.
Negative vocalization	Any instance of crying, whining, or engaging in verbal protest during a bite presentation that occurs for a duration of at least 2 seconds. Includes any sound emitted from the child that is above a conversational volume, vocalizations occurring with or without tears, protests at a normal volume. Does not include positive vocalizations, such as "I got this", "This is great", etc.

Appendix B

Data Sheet: NRS

NRS

Participant #: ______________________

Observer: ______________________ Date: ____________

Condition (circle one): Baseline Role Play Generalization

1. Did the participant scoop a bite and place the spoon on the tray while simultaneously providing the verbal instruction “Take a bite”?	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA
2. Did the participant begin the procedure at the start of refusal behavior and/or if the child did not accept the bite within 10 seconds?	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA
3. Did the participant place the spoon at the child’s upper lip?	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA
4. Was a jaw prompt immediately applied with the non-dominant hand?	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA
5. Did the spoon remain at the upper lip and follow any turns of the child’s head?	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA
6. Did the jaw prompt remain in place throughout the bite presentation?	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA
7. Did the spoon remain at the upper lip until the child opened their mouth and the entire bite is placed in the mouth (nothing larger than the size of a pea left on the spoon)?	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA

Data Sheet: Planned Ignoring

PLANNED IGNORING

Participant #: ___________________________

Observer: __________________________ Date: _____________

Condition (circle one): Baseline Role Play Generalization

1. Did the participant scoop a bite and place the spoon on the tray while simultaneously providing the verbal instruction “Take a bite”?	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA
2. Once the prompt “take a bite is given”, did the participant cease any additional talking?	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA
3. Did the participant ignore any negative vocalizations of the child occurring during bite presentation (talking, cursing, crying, whining, or verbal protest)?	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA
4. Did the participant ignore any non-verbal behaviors occurring during bite presentation (hitting, pinching, kicking, swatting)?	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA
5. Did the participant avoid eye contact with the child?	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA
6. Did the participant maintain a neutral facial expression?	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA
7. Did the participant maintain a calm demeanor throughout the entire session?	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA

Data Sheet: Blocking

BLOCKING

Participant #: __________________________

Observer: _________________________ Date: _____________

Condition (circle one): Baseline Role Play Generalization

1. Did the participant recognize when the child began engaging in “active” refusal behaviors that made it difficult to keep the spoon at the child’s mouth?	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA
2. Did the participant begin blocking procedure immediately?	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA
3. Did the participant go behind the child while providing no verbal or non-verbal attention: e.g., sighing, rolling eyes, “Okay, I have to block you now.”?	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA
4. Did the participant cross the child’s arms across their chest in an “X” shape?	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA
5. Did the participant use their non-dominant forearm, bicep, or inside of elbow to block child’s attempts to dislodge her arms?	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA
6. Did the participant use their dominant hand to keep the spoon at the child’s upper lip until the bite was taken?	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA
7. Did the participant block all responses until the entire bite was placed into the child’s mouth or until refusal behaviors ceased?	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA	Y / N / NA

Appendix C

Verbal Instruction: feeding protocol

Southeastern Pennsylvania Autism Resource Center

SPARC's Feeding Protocol

Meal Procedures:

1. A bite should be presented to CHILD while the feeder says, **"Take a bite."** CHILD has 10-sec. to place the bite of food in his mouth. The feeder counts off the 10" in his/her head ("Ten one-thousand, nine one-thousand…" etc.).
2. If CHILD accepts the bite within the 10-sec. period, provide enthusiastic verbal praise and deliver tangible reinforcer. Set the timer for 30-sec. When the timer goes off, remove the tangible reinforcer and present the next bite (see Step 1).
3. If CHILD does not accept the bite within the 10-second period, use a hand over hand prompt to guide the bite of food to CHILD 's mouth. (*Hand over hand: The feeder rests their hand over CHILD's and guides the bite of food to his mouth.)*
4. If CHILD resists at any point, switch to the 'Non-Self-Feeder' Procedure: The feeder takes control of the spoon and holds the spoon, with its bite of food, at CHILD's upper lip.
    - *Non-removal of the spoon (NRS):* If CHILD moves his head to avoid the spoon being held to his upper lip, follow his motions while keeping the spoon at his upper lip- do not allow CHILD to escape for refusal behaviors. The feeder should use their non-feeder hand to implement a jaw-prompting action. The jaw prompting is not used to keep CHILD from moving his head, but to help the feeder keep the utensil in position as he moves his head.
        - (A jaw prompt is used in conjunction with non-removal of the spoon. In jaw prompting, the feeders' non-dominant hand applies gentle pressure to the mandibular joint. The feeder places their thumb and middle finger on either side of the child's jaw, palm facing out, with the child's chin resting the ridge of the hand. No hard pressure is applied to the face and this prompt is never used to attempt to open the mouth. It serves only as a physical prompt to the child to open her mouth).
    - Continue the non-removal of the spoon procedure until the entire bite is taken off the spoon.

5. If CHILD expels any food larger than the size of a pea that has been previously deposited in his mouth, immediately scoop it back up with the spoon, or obtain a new bite comparable in size to the amount expelled. Re-present the bite to CHILD with the instruction "Finish your bite".
    - If refusal behavior occurs, utilize the NRS procedures (see Step 4) until the bite is swallowed.
6. All refusal behaviors should be ignored: this is called *planned ignoring*. During refusal behavior, CHILD should not be given any verbal OR nonverbal attention. Remember you want to clearly show CHILD that when he is eating well you will give him lots of attention and have fun but when he is refusing, he does not receive any attention. Providing any kind of attention for an inappropriate feeding behavior will serve to actually reinforce that behavior!
    - Do not give additional verbal prompts or encouragement to persuade CHILD to take bites, chew, and swallow. Do not respond if he complains about a food.
7. If CHILD engages in "active" refusal behavior that makes it difficult for the feeder to keep the spoon at CHILD's upper lip- swatting the spoon, aggression, turning around, throwing head down, etc.- the feeder should utilize *blocking*.
    - For a one-person block, the feeder goes behind the child and crosses both of the child's arms across his chest. The feeder's non-dominant hand is used to hold the child's crossed arms in place; the dominant hand is used to hold the spoon at the child's upper lip
    - The block is used until the entire bite is in the child's mouth or until "active" refusal behaviors have ceased.
8. Continue this meal procedure until he has finished all the food or until the 40-minute time cap has elapsed.

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Appendix D

Modeling instructions: Participant

Non-removal of the spoon

1. You should be seated in the Rifton© with the tray attached; the feeder should be seated in front of you.
2. The feeder will scoop a bite onto the spoon and place the spoon in the middle of the Rifton© tray while simultaneously providing the instruction "Take a bite."
   ***Your response*:** Do not take the spoon off of the tray. Your arms should remain still.
3. The feeder will provide a physical prompt (e.g., place your hand on the spoon).
   ***Your response*:** Resist the attempt to place your hand on the spoon. Turn your head to the right.
4. The feeder will pick up the spoon from the tray and place it at your upper lip while simultaneously providing a jaw prompt.
   Your response: Move your head back and forth and up and down while simultaneously moving your shoulders no more than 6 inches to the left and right. Do not open your mouth to take the bite. Continue turning your head.
5. After an average of 2 minutes, open your mouth and take the bite of food off the spoon.

Planned ignoring

1. You should be seated in the Rifton© with the tray attached; the feeder should be seated in front of you.
2. The feeder will scoop a bite onto the spoon and place the spoon in the middle of the Rifton© tray while simultaneously providing the instruction "Take a bite."
   ***Your response*:** Do not take the spoon off of the tray. Your arms should remain still.
3. The feeder will provide a physical prompt (e.g., place your hand on the spoon).
   ***Your response*:** Resist the attempt to place your hand on the spoon. Turn your head to the right.
4. The feeder will pick up the spoon from the tray and place it at your upper lip while simultaneously providing a jaw prompt.
   ***Your response*:** Move your head back and forth and up and down while simultaneously moving your shoulders no more than 6 inches to the left and right. Begin to yell, scream, ask to be done the meal, ask for help, say "I don't want to eat it" or "I don't like this", attempt to hit the participant's hand, kick, wave your arms, bang on the tray, etc.
   - Attempt to "catch" their eye gaze and make eye contact with the participant while engaging in verbal protest.
   - Maintain an angry or sad facial expression during bite presentation.
5. After an average of 2 minutes, open your mouth and take the bite of food off the spoon.

Blocking

1. You should be seated in the Rifton© with the tray attached; the feeder should be seated in front of you.
2. The feeder will scoop a bite onto the spoon and place the spoon in the middle of the Rifton© tray while simultaneously providing the instruction "Take a bite."
   ***Your response*:** Do not take the spoon off of the tray. Your arms should remain still.
3. The feeder will provide a physical prompt (e.g., place your hand on the spoon).
   ***Your response*:** Resist the attempt to place your hand on the spoon. Turn your head to the right.
4. The feeder will pick up the spoon from the tray and place it at your upper lip while simultaneously providing a jaw prompt.
   ***Your response*:** Move your head back and forth and up and down while simultaneously moving your shoulders no more than 6 inches to the left and right. Begin to yell, scream, ask to be done the meal, ask for help, say "I don't want to eat it" or "I don't like this", attempt to hit the participant's hand, kick, wave your arms, bang on the tray, etc.
   - Attempt to "catch" their eye gaze and make eye contact with the participant while engaging in verbal protest.
   - Maintain an angry or sad facial expression during bite presentation.
   - This period of minimal refusal should continue for about <u>20 seconds</u>.
5. Begin to increase the intensity of physical refusal. Move your body more than one foot to the left and right, tilt your head back, put your head down on the tray, attempt to swat the spoon away, attempt to hit the participant. It should be very difficult for the feeder to keep the spoon at your mouth.
6. The feeder will silently get up from the chair, go behind you, place your arms across your chest in a "X' shape.
   Your response: Continue to move your head, attempt to move your body away from the spoon, kick, scream, cry, and attempt to move your arms out of the "X" position.
7. After an average of 2 minutes, stop engaging in refusal behavior, open your mouth and take the bite of food off the spoon.

Modeling instructions: Feeder

Non-removal of the spoon

1. The participant should be seated in the Rifton© with the tray attached, seated in front of you.
2. You should have (on a table beside you): 3 bowls of the same color with different foods in each, a spoon, a kitchen timer set to 30 seconds, toys or tangible items similar to those used by their child in treatment. You should be wearing gloves.
3. Scoop a bite onto the spoon and place the spoon in the middle of the Rifton© tray while simultaneously providing the instruction "Take a bite."
    a. Since the child is right hand dominant, the handle of the spoon should be facing the right side of the tray.
4. If the participant does not pick up the spoon, provide a physical prompt (e.g., place their hand on the spoon).
5. If the participant is still resisting, pick up the spoon from the tray and place it at their upper lip while simultaneously providing a jaw prompt.
6. Continue to hold the spoon at their upper lip with a jaw prompt for the duration of bite "refusal": i.e., participant open's their mouth and takes the bite of food off the spoon.

Planned ignoring

1. The participant should be seated in the Rifton© with the tray attached, seated in front of you.
2. You should have (on a table beside you): 3 bowls of the same color with different foods in each, a spoon, a kitchen timer set to 30 seconds, toys or tangible items similar to those used by their child in treatment. You should be wearing gloves.
3. Scoop a bite onto the spoon and place the spoon in the middle of the Rifton© tray while simultaneously providing the instruction "Take a bite."
    a. Since the child is right hand dominant, the handle of the spoon should be facing the right side of the tray.
4. If the participant does not pick up the spoon, provide a physical prompt (e.g., place their hand on the spoon).
5. If the participant is still resisting, pick up the spoon from the tray and place it at their upper lip while simultaneously providing a jaw prompt.
6. Continue to hold the spoon at their upper lip with a jaw prompt for the duration of bite "refusal": i.e., participant open's their mouth and takes the bite of food off the spoon.
7. Ignore all verbal protests and aggression.
8. Provide no eye contact, but rather, divert your eye gaze to the tip of the participant's nose or at their mouth.
9. Maintain a neutral facial expression (no frowning, smiling, squinting, etc.).
10. When the participant opens their mouth and takes the bite of food off the spoon, attention may be provided (verbal and non-verbal).

Blocking

1. The participant should be seated in the Rifton© with the tray attached, seated in front of you.
2. You should have (on a table beside you): 3 bowls of the same color with different foods in each, a spoon, a kitchen timer set to 30 seconds, toys or tangible items similar to those used by their child in treatment. You should be wearing gloves.
3. Scoop a bite onto the spoon and place the spoon in the middle of the Rifton© tray while simultaneously providing the instruction "Take a bite."
    a. Since the child is right hand dominant, the handle of the spoon should be facing the right side of the tray.
4. If the participant does not pick up the spoon, provide a physical prompt (e.g., place their hand on the spoon).
5. If the participant is still resisting, pick up the spoon from the tray and place it at their upper lip while simultaneously providing a jaw prompt.
6. Provide no eye contact and ignore all verbal protests, aggression, and attempts to gain attention. Your facial expression should remain neutral.
7. As the intensity of refusal increases, and you are unable to keep the spoon at the participant's upper lip, silently get up from the chair, go behind them, place your arms across their chest in a "X' shape, and use your non-dominant arm (the hand without the spoon) to block their attempts to move their arms from this position.
    a. You must maintain an open hand and use your forearm, bicep, or inside of the elbow to block responses.
    b. Your dominant hand should be holding the spoon at their upper lip during the blocking procedure.
8. Blocking should continue until the participant ceases engaging in refusal behavior or opens their mouth to take the bite of food off the spoon.

Appendix E

Role Play Procedures: NRS

Role Play Procedures

Non-removal of the spoon

1. Sit in the Rifton© with the tray attached.
2. Participant should be seated in front of you, in the feeder's seat.
    a. Participant should have beside them on a table:
        - 3 bowls of the same color with preferred, intermediate, and non-preferred foods
        - A spoon
        - A kitchen timer set to 30 seconds
        - Toys or tangible items similar to those used by their child in treatment.
    b. Participant should be wearing gloves
3. The participant scoops a bite onto the spoon and places the spoon in the middle of the Rifton© tray while simultaneously providing the instruction "Take a bite."
    a. Since the child is right hand dominant, the handle of the spoon should be facing the right side of the tray.

    <u>Your response</u>: Do not take the spoon off of the tray. Arms remain still.
4. Participant should provide a physical prompt (e.g., place your hand on the spoon).
   <u>Your response</u>: Resist the attempt to place your hand on the spoon. Turn your head to the right.
5. Participant should pick up the spoon from the tray and place it at your upper lip while simultaneously providing a jaw prompt.
   <u>Your response</u>: Move your head back and forth and up and down while simultaneously moving your shoulders no more than 6 inches to the left and right.
6. Participant should continue to hold the spoon at your upper lip with a jaw prompt for the duration of bite "refusal."
7. After an average of 2 minutes, open your mouth and take the bite of food off the spoon.

Feedback:

- If procedure was implemented correctly, provide behavior specific praise:
    - E.g., "You did a great job keeping the spoon at my upper lip while I was turning my head: no matter where my head went, the spoon followed."
- If at any point the participant makes an error, terminate the trial and indicate what was performed incorrectly. Provide a brief verbal description of the error, describe how it should have been performed, briefly model the correct response, and begin a new trial (resume the role play sequence from the beginning- Step 3).
    - E.g., "Let's stop here. When I was turning my head, you took the spoon away. Remember, the spoon should remain at my upper lip even when my head is turning side to side. (Provide a model). Let's try that again."

Role Play Procedures: Planned Ignoring

Planned ignoring

1. Sit in the Rifton© with the tray attached.
2. Participant should be seated in front of you, in the feeder's seat.
    a. Participant should have beside them on a table:
        - 3 bowls of the same color with preferred, intermediate, and non-preferred foods
        - A spoon
        - A kitchen timer set to 30 seconds
        - Toys or tangible items similar to those used by their child in treatment.
    b. Participant should be wearing gloves
3. The participant scoops a bite onto the spoon and places the spoon in the middle of the Rifton© tray while simultaneously providing the instruction "Take a bite."
    a. Since the child is right hand dominant, the handle of the spoon should be facing the right side of the tray.

    Your response: Do not take the spoon off of the tray. Arms remain still.
4. Participant should provide a physical prompt (e.g., place your hand on the spoon).

    Your response: Resist the attempt to place your hand on the spoon. Turn your head to the right.
5. Participant should pick up the spoon from the tray and place it at your upper lip while simultaneously providing a jaw prompt.

    Your response: Move your head back and forth and up and down while simultaneously moving your shoulders no more than 6 inches to the left and right. Begin to yell, scream, ask to be done the meal, ask for help, say "I don't want to eat it" or "I don't like this", attempt to hit the participant's hand, kick, wave your arms, bang on the tray, etc.
6. Participant should continue to hold the spoon at your upper lip with a jaw prompt for the duration of bite "refusal."
7. Participant should ignore all verbal protests and aggression.
8. Participant should provide no eye contact, but rather, divert their eye gaze to the tip of your nose or at your mouth.
   Your response: Attempt to "catch" their eye gaze and make eye contact with the participant while engaging in verbal protest.
9. Participant should maintain a neutral facial expression (no frowning, smiling, squinting, etc.).
   Your response: Maintain an angry or sad facial expression during bite presentation.
10. After an average of 2 minutes, open your mouth and take the bite of food off the spoon.

    Feedback:
    - If procedure was implemented correctly, provide behavior specific praise:
        - E.g., "You did a great job looking at the tip of my nose, even though I was trying to make eye contact with you."
    - If at any point the participant makes an error, terminate the trial and indicate what was performed incorrectly. Provide a brief verbal description of the error, describe how it should have been performed, briefly model the correct response, and begin a new trial (resume the role play sequence from the beginning- Step 3).
        - E.g., "Let's stop for a minute. When I was yelling for help, you looked worried. Remember, even if your child is yelling or crying, your face should remain neutral. (Provide a model). Let's try that again."

Blocking

1. Sit in the Rifton© with the tray attached.
2. Participant should be seated in front of you, in the feeder's seat.
    a. Participant should have beside them on a table:
        - 3 bowls of the same color with preferred, intermediate, and non-preferred foods
        - A spoon
        - A kitchen timer set to 30 seconds
        - Toys or tangible items similar to those used by their child in treatment.

    b. Participant should be wearing gloves
3. The participant scoops a bite onto the spoon and places the spoon in the middle of the Rifton© tray while simultaneously providing the instruction "Take a bite."
    a. Since the child is right hand dominant, the handle of the spoon should be facing the right side of the tray.

    Your response: Do not take the spoon off of the tray. Arms remain still.
4. Participant should provide a physical prompt (e.g., place your hand on the spoon).

    Your response: Resist the attempt to place your hand on the spoon. Turn your head to the left.
5. Participant should pick up the spoon from the tray and place it at your upper lip while simultaneously providing a jaw prompt.

    Your response: Move your head back and forth and up and down while simultaneously moving your shoulders more than 6 inches to the left and right. Begin to yell, scream, ask to be done the meal, ask for help, say "I don't want to eat it" or "I don't like this", attempt to hit the participant's hand, kick, wave your arms, bang on the tray, etc.

    Participant should provide no eye contact and ignore all verbal protests, aggression, and attempts to gain attention. Participant's facial expression should remain neutral. This period of minimal refusal should continue for about 20 seconds.
6. *Your response*: Begin to increase the intensity of physical refusal. Move your body more than one foot to the left and right, tilt your head back, put your head down on the tray, attempt to swat the spoon away, attempt to hit the participant. It should be very difficult for the participant to keep the spoon at your mouth.
7. The participant should silently get up from the chair, go behind you, place your arms across your chest in a "X' shape, and use their non-dominant arm (the hand without the spoon) to block your attempts to move your arms from this position. The participant must maintain an open hand and use their forearm, bicep, or inside of the elbow to block responses. The participant's dominant hand should be holding the spoon at your upper lip during the blocking procedure.

    Your response: Continue to move your head, attempt to move your body away from the spoon, and attempt to move your arms out of the "X" position.
8. After an average of 2 minutes, stop engaging in refusal behavior, open your mouth and take the bite of food off the spoon.

    Feedback:
    - If procedure was implemented correctly, provide behavior specific praise:
        - E.g., "You did a great job recognizing when you could no longer keep the spoon at my upper lip, so you got up to block."
    - If at any point the participant makes an error, terminate the trial and indicate what was performed incorrectly. Provide a brief verbal description of the error, describe how it should have been performed, briefly model the correct response, and begin a new trial (resume the role play sequence from the beginning- Step 3).
        - E.g., "We're going to stop for a moment. When I put my head down on the tray and you were unable to keep the spoon at my mouth, you looked confused. When the refusal is so significant that you can no longer keep the spoon at your child's mouth, get up and go behind to block (Provide a model). Let's try that again."

Appendix F

Procedural Fidelity Baseline

Feeding Therapist: __________________________ Bite #: _____________

Observer: _________________________ Date: _____________

Procedural Fidelity, Condition: Baseline

1. Was the "child" seated in the Rifton© chair with tray attached?	Y / N / NA
2. Was the participant seated directly in front of the "child"?	Y / N / NA
3. Were materials available on a table beside the participant- 3 bowls, spoon, timer, toys?	Y / N / NA
4. Did the therapist instruct the participant to feed the "child"?	Y / N / NA
5. The therapist provided no feedback (praise or behavior corrections)?	Y / N / NA
6. The therapist maintained a neutral facial expression.	Y / N / NA
7. Did baseline continue until at least 7 bites were presented or until stability criterion was reached?	Y / N / NA
8. Did the therapist maintain a professional demeanor throughout the entire session?	Y / N / NA

Procedural Fidelity Verbal Instruction

Feeding Therapist: ___________________________ Session #: _____________

Observer: __________________________ Date: _____________

Condition: Verbal Instruction

1. The researcher followed the script provided for verbal instruction with minimal deviation.	Y / N / NA
2. The researcher provided the participant with a copy of the child's protocol.	Y / N / NA
3. Did the researcher read through the feeding protocol with the participant?	Y / N / NA
4. Did the researcher describe the procedure in detail?	Y / N / NA
5. Did the researcher provide clarifying statements and answer any questions that the participant had?	Y / N / NA
6. Was the duration of the verbal instruction no more than 45 minutes?	Y / N / NA
7. Did the researcher maintain a professional demeanor throughout the entire session?	Y / N / NA

Procedural Fidelity NRS Modeling

Feeding Therapist: __________________________ Bite #: _____________

Observer: _________________________ Date: _____________

Procedural Fidelity, Condition: Modeling- NRS

1. Was the "child" seated in the Rifton© chair with tray attached?	Y / N / NA
2. Was the feeding therapist seated directly in front of the "child"?	Y / N / NA
3. Were materials available on a table beside the feeding therapist- 3 bowls, spoon, timer, toys?	Y / N / NA
4. Did the therapist scoop a bite and place the spoon on the tray while simultaneously providing the verbal instruction "Take a bite"?	Y / N / NA
5. If a bite was refused, did the therapist place the spoon at the participant's upper lip?	Y / N / NA
6. Was a jaw prompt used?	Y / N / NA
7. Did the therapist instruct the "child" to move their head to the left and right?	Y / N / NA
8. Did the spoon stay at the upper lip until the bite was taken? (i.e., the spoon follows the mouth as the head is turning in either direction)	Y / N / NA
9. Did the therapist maintain a jaw prompt until the bite was taken?	Y / N / NA
10. Did the therapist maintain a professional demeanor throughout the entire session?	Y / N / NA

Procedural Fidelity NRS Role Play

Feeding Therapist: ___________________________ Bite #: _____________

Observer: __________________________ Date: _____________

Procedural Fidelity, Condition: Role Play- NRS

1. Was the "child" seated in the Rifton© chair with tray attached?	Y / N / NA
2. Was the participant seated directly in front of the "child"?	Y / N / NA
3. Were materials available on a table beside the participant- 3 bowls, spoon, timer, toys?	Y / N / NA
4. Did the "child" turn their head and shoulders to the left and right no more than 6 inches in an attempt to "escape" the bite?	Y / N / NA
5. Did the "child" continue to engage in refusal behavior for the specified time?	Y / N / NA
6. Did the therapist provide praise for correct behavior?	Y / N / NA
7. When an error was made, did the therapist end the trial immediately?	Y / N / NA
8. Following ending of an incorrect trial, was verbal feedback given with simultaneous modeling of target behavior?	Y / N / NA
9. Did the therapist provide graphical feedback following the session?	Y / N / NA
10. Did the therapist maintain a professional demeanor throughout the entire session?	Y / N / NA

Procedural Fidelity Planned Ignoring Modeling

Feeding Therapist: __________________________ Bite #: _____________

Observer: _________________________ Date: _____________

Procedural Fidelity, Condition: Modeling- Planned ignoring

1. Was the "child" seated in the Rifton© chair with tray attached?	Y / N / NA
2. Was the feeding therapist seated directly in front of the "child"?	Y / N / NA
3. Were materials available on a table beside the feeding therapist- 3 bowls, spoon, timer, toys?	Y / N / NA
4. Did the therapist scoop a bite and place the spoon on the tray while simultaneously providing the verbal instruction "Take a bite"?	Y / N / NA
5. Did the "child" engage in refusal behavior- kicking, hitting, swatting?	Y / N / NA
6. Did the "child" emit in negative vocalizations during bite presentation?	Y / N / NA
7. Did the therapist ignore all refusal behaviors and negative vocalizations?	Y / N / NA
8. Did the therapist maintain a neutral facial expression?	Y / N / NA
9. Did the therapist avoid eye contact (i.e., look at the tip of the nose or mouth)?	Y / N / NA
10. Did the therapist maintain a professional demeanor throughout the entire session?	Y / N / NA

Procedural Fidelity Planned Ignoring Role Play

Feeding Therapist: ___________________________ Bite #: _____________

Observer: __________________________ Date: _____________

Procedural Fidelity, Condition: Role Play- Planned ignoring

1. Was the "child" seated in the Rifton© chair with tray attached?	Y / N / NA
2. Was the participant seated directly in front of the "child"?	Y / N / NA
3. Were materials available on a table beside the participant- 3 bowls, spoon, timer, toys?	Y / N / NA
4. Did the "child" engage in refusal behavior and emit negative vocalizations during bite presentation?	Y / N / NA
5. Did the "child" continue to engage in refusal behavior for the specified time?	Y / N / NA
6. Did the therapist provide praise for correct behavior?	Y / N / NA
7. When an error was made, did the therapist end the trial immediately?	Y / N / NA
8. Following ending of an incorrect trial, was verbal feedback given with simultaneous modeling of target behavior?	Y / N / NA
9. Did the therapist provide graphical feedback following the session?	Y / N / NA
10. Did the therapist maintain a professional demeanor throughout the entire session?	Y / N / NA

Procedural Fidelity Blocking Modeling

Feeding Therapist: ___________________________ Bite #: _____________

Observer: __________________________ Date: _____________

Procedural Fidelity, Condition: Modeling- Blocking

1. Was the “child” seated in the Rifton© chair with tray attached?	Y / N / NA
2. Was the feeding therapist seated directly in front of the “child”?	Y / N / NA
3. Were materials available on a table beside the feeding therapist- 3 bowls, spoon, timer, toys?	Y / N / NA
4. Did the therapist scoop a bite and place the spoon on the tray while simultaneously providing the verbal instruction “Take a bite”?	Y / N / NA
5. Did the “child” engage in refusal behavior that made it difficult for the spoon to stay at the mouth?	Y / N / NA
6. When the therapist could no longer keep the spoon at the mouth, did she get up and begin blocking procedure?	Y / N / NA
7. Did the therapist cross the “child’s” arms across their chest in an “X” shape?	Y / N / NA
8. Did the therapist use their non-dominant forearm, bicep, or inside of elbow to block “child’s” attempts to dislodge her arms?	Y / N / NA
9. Did the therapist use their dominant hand to keep the spoon at the “child’s” upper lip until the bite was taken?	Y / N / NA
10. Did the therapist maintain a professional demeanor throughout the entire session?	Y / N / NA

Procedural Fidelity Blocking Role Play

Feeding Therapist: ___________________________ Bite #: _____________

Observer: __________________________ Date: _____________

Procedural Fidelity, Condition: Role Play- Blocking

1. Was the "child" seated in the Rifton© chair with tray attached?	Y / N / NA
2. Was the participant seated directly in front of the "child"?	Y / N / NA
3. Were materials available on a table beside the therapist- 3 bowls, spoon, timer, toys?	Y / N / NA
4. Did the "child" engage in refusal behavior that made it difficult for the spoon to stay at the mouth?	Y / N / NA
5. Did the "child" continue to engage in refusal behavior for the specified time?	Y / N / NA
6. Did the therapist provide praise for correct behavior?	Y / N / NA
7. When an error was made, did the therapist end the trial immediately?	Y / N / NA
8. Following ending of an incorrect trial, was verbal feedback given with simultaneous modeling of target behavior?	Y / N / NA
9. Did the therapist provide graphical feedback following the session?	Y / N / NA
10. Did the therapist maintain a professional demeanor throughout the entire session?	Y / N / NA

Appendix G

Social Validity Pre-Assessment

1. My child's food refusal/ selectivity is severe.	1 2 3 4 5
2. I am confident that the interventions will increase my child's variety and volume of food.	1 2 3 4 5
3. I am worried that the treatment will be aversive.	1 2 3 4 5
4. I understand all components of treatment.	1 2 3 4 5
5. Procedures have been explained to me thoroughly.	1 2 3 4 5
6. All of my questions about the course of treatment have been answered.	1 2 3 4 5
7. I feel comfortable asking therapists any questions that I may have.	1 2 3 4 5
8. I am confident that I will be able to implement treatment at home after the 3-week intensive.	1 2 3 4 5
9. I feel that the positive impact this will have on my child will outweigh any negatives.	1 2 3 4 5

Note. All items were scored 1 (strongly disagree) to 5 (strongly agree).

Social Validity Post-Assessment

1. My child's food refusal/ selectivity is severe.	1 2 3 4 5
2. I am confident that the intervention will increase my child's variety and volume of food.	1 2 3 4 5
3. I find escape extinction be aversive.	1 2 3 4 5
4. I understand all components of treatment.	1 2 3 4 5
5. Procedures were explained to me thoroughly.	1 2 3 4 5
6. All of my questions about the course of treatment were answered.	1 2 3 4 5
7. I felt comfortable asking the therapist any questions that I had.	1 2 3 4 5
8. I am confident that I will be able to implement treatment at home after the 3-week intensive.	1 2 3 4 5
9. I feel that the positive impact this will have on my child will outweigh any negatives.	1 2 3 4 5
10. I found the intervention to be complex or difficult to understand.	1 2 3 4 5
11. Verbal instructions were given in a clear, concise way that was easy to understand.	1 2 3 4 5
12. It was helpful to have the skills modeled for me prior to trying them myself.	1 2 3 4 5
13. Role playing with the feeding therapist helped me feel more prepared for when I was expected to feed my child.	1 2 3 4 5
14. The training package helped me be more confident when implementing the interventions with my child.	1 2 3 4 5
15. I am confident that I will be able to implement treatment at home with minimal difficulty.	1 2 3 4 5
16. I am satisfied with the outcome.	1 2 3 4 5

Note. All items were scored 1 (strongly disagree) to 5 (strongly agree).