ACCEPTABILITY OF TREATMENTS FOR FOOD REFUSAL AND SELECTIVITY
IN CHILDREN WITH AUTISM

by

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ABSTRACT

This study examined the acceptability of two behavioral treatments for food refusal and selectivity. We examined the impact of written information and videos of the procedures on the acceptability of the treatments. Forty undergraduate students from Middle Tennessee State University and ten parents rated their knowledge of autism and feeding problems as well as treatments for those problems. Participants read a vignette depicting a child with autism exhibiting food selectivity, read information and/or watched a video about two treatment options, and rated the acceptability of each intervention option. Results indicate that perceptions of the interventions were more positive after exposure to information about them. No differences were found between parent and student groups regarding acceptability or willingness to implement the two interventions. Differential reinforcement (DR) was preferred over escape extinction (EE). Of those preferring EE, all were in the video exposure group.

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CHAPTER 1: INTRODUCTION

Autism Spectrum Disorder is a neurodevelopmental disorder in which the individual experiences deficits in "social communication and social interaction" as well as exhibiting "restricted, repetitive patterns of behavior, interests, or activities" (American Psychiatric Association, 2013, p. 50). Many children with Autism Spectrum Disorder (ASD) also experience feeding difficulties, such as food refusal or food selectivity, with prevalence rates as high as 90% (Volkert & Vaz, 2010). Food refusal is simply when the child refuses to eat any food, and it often results in low nutritional intake. Food selectivity (only eating certain types of foods based on color, texture, brand, etc.; Twachtman-Reilly, Amaral, & Zebrowski, 2008) is the most common problem among children with ASD, with rates as high as 67% (Williams, Dalyrymple, & Neal, 2000). Children with food selectivity and food refusal are often at risk for several health issues and typically exhibit inappropriate mealtime behaviors (IMB) (i.e., spitting, crying, throwing, yelling, etc.), thus these problems warrant attention. Some known treatments for these problems include medical, dietary, sensory, and behavioral techniques.

Medical interventions are often used for more severe cases in which the child is failing to thrive or is severely malnourished. These treatments may include techniques such as intravenous feeding or gastrostomy tubes (Riordan, Iwata, Finney, Wohl, & Stanley, 1984). For less serious cases, dietary supplements may be used in order to fulfill their nutritional needs (e.g., Williams & Hendy, 2014). Medical and dietary interventions, however, do not teach the child how to increase their variety of food consumption (Williams & Hendy, 2014). Additionally, Williams and Hendy (2014) report that

supplements may suppress appetite or put the child at risk for becoming overweight due to the high amount of calories. Feeding tubes and supplements also only focus on treating one problem (i.e., nourishment), and do not focus on the behavioral issues of selectivity and refusal, which are pervasive and long-lasting. It is important to address the behaviors in order to increase the independence and success of the individual.

Sensory integration is an approach used for various issues that children with ASD experience, including feeding problems. In sensory integration, "children are provided opportunities to experience specifically chosen sensory experiences to achieve a calm-alert state before and during engagement in the clinical meal" (Suarez, 2015, p. 427). Suarez (2015) suggests that "food selectivity may be related to sensory overresponsivity (SOR) (i.e., an excessive behavioral response to a sensory stimulus that is out of context with the demands of the environment), leading to food-related anxiety" (p. 426). Thus, sensory integration is used to help ease the children's anxiety before introducing new foods to them. Addison et al. (2012) compared sensory integration to behavioral techniques to treat food refusal in a 1-year-old boy, and food selectivity in a 3-year-old girl. They used an ABCBC design to assess the effectiveness of sensory versus behavioral methods to increase the children's acceptance of food and decrease their IMB. Addison et al. (2012) found that sensory integration was not as effective as behavioral methods. They observed the largest increase in consumption and decrease in IMB for both children in the behavioral condition.

Peterson, Piazza, and Volkert (2016) also compared a behavioral treatment package to a Modified- Sequential Oral Sensory (M-SOS) approach in the treatment of

food refusal among six boys age 4- to 6-years-old with ASD. They used a combination multiple baseline across foods and multielement design to assess the children's acceptance of food, mouth clean, total grams of food consumed, and IMB. Three of the boys were randomly assigned to the Applied Behavior Analysis (ABA) procedures and the other three were assigned to the M-SOS approach. The behavioral approach included continuous interaction and nonremoval of the spoon (NRS), in which the therapist guided the child's hand to pick up the spoon and guided it to his mouth until he accepted a bite. Additionally, the therapists verbally praised the children when they accepted a bite and swallowed and ignored their IMB. In the M-SOS condition, each session began "with a sensory preparation routine in an indoor playground" (Peterson et al., 2016, p. 495) for 10 minutes. Then, the therapist and child marched and sang into the feeding room. The therapist presented the food in six steps, including "visual tolerance, indirect interaction, smelling, touching, tasting, and eating" (Peterson et al. 2016, p. 495). During each session, the therapist often used positive statements, modeled behavior, used light physical prompts, and an "approximation of physical guidance" (Peterson et al., 2016, p. 496), and gave the child verbal praise when he engaged in the target behavior specified by the current step. This method differed from the ABA treatment primarily because there were no instructions to take a bite, and the child was allowed to escape the food if IMB were observed.

Peterson et al. (2016) observed an 80% increase in bite acceptance and mouth clean for children in the ABA group. They did not observe an increase in bite acceptance or mouth clean for the children in the M-SOS group. Additionally, they observed a

decrease in the children's IMB when they implemented the ABA treatment. The results of this study suggest that the ABA method was more effective in increasing food consumption and decreasing IMB than the M-SOS approach for the participants.

Given the various types of methods that one may choose from to treat food refusal or selectivity, many factors may be involved in the decision-making process. One factor in particular is the social validity, or social acceptability, of the treatment. Clients are typically the ones who determine whether a treatment is "socially valid". Wolf (1978) proposed that (1) "the social significance of the goals", (2) "the social appropriateness of the procedures", and (3) "the social importance of the effects" (p. 207) should be considered when choosing a treatment. Additionally, Wolf (1978) stated that "the acceptability of the program is related to the effectiveness, as well as to the likelihood that the program will be adopted and supported by others" (p. 210). Thus, when evaluating techniques to be used to treat food refusal or selectivity, one must also assess the social validity, or acceptability, of the treatment. Those who will be involved in the treatment process should consider the intervention to be socially acceptable in order for it to be effective. The remainder of this review will focus on effective and socially acceptable behavioral techniques that may be applied in the treatment of food refusal or selectivity in children with ASD. These methods will be described in the contexts of homes, clinics, schools, hospitals, etc. and may be conducted by parents, teachers, therapists, and any other individuals who may encounter a child with ASD who experiences food refusal or food selectivity.

Behavioral Therapy Methods

Many studies in the literature regarding feeding therapy utilize some form of escape extinction (EE) and reinforcement to increase food consumption and decrease IMB. EE in feeding therapy is the process of no longer allowing the child to escape from meals if he or she exhibits any type of IMB and is often either in the form of nonremoval of the spoon (NRS) or physical guidance. In the NRS technique, the feeder holds the spoon to the child's mouth and does not take the spoon away until the child accepts the bite. In the physical guidance technique, the feeder takes the child's hand and physically guides the child through the steps from picking up the spoon to taking a bite of food. Positive reinforcement involves introducing a reinforcer (e.g., verbal praise or access to a preferred item) following the target behavior (e.g., consumption of food) in order to increase the future likelihood of the behavior occurring. Negative reinforcement involves removing an aversive stimulus (e.g., mealtime or demands to take bites) following the target behavior (e.g., consumption of food) in order to increase the future likelihood of the behavior occurring. Differential reinforcement (DR) is the process of giving reinforcement for a specific behavior under certain conditions and withholding reinforcement during other conditions. Treatment for feeding difficulties often utilizes DR of an alternative behavior (DRA), in which an individual's alternative behavior (e.g., taking a bite of food) is reinforced and the inappropriate behavior (e.g., IMB) is ignored.

Some other common methods that will be discussed in this review include fading, shaping, prompting, modeling, choice, and sequential presentation. Stimulus fading with respect to feeding problems is a procedure in which the feeder gradually increases the

amount of food that the child is required to eat before receiving reinforcement. Shaping is a technique in which approximations of the target behavior (e.g., touch food to lips, put food in mouth, etc.) are differentially reinforced, and are slowly shaped into the desired behavior (e.g. consuming the food). Prompting, with respect to feeding therapy, is the use of verbal (e.g., "take a bite"), gestural (e.g., pointing to bite), or physical (e.g., guiding the child's hand to the spoon) cues to instruct the child to perform a desired behavior (e.g., accepting a bite). Modeling is used with either a peer or an adult model to show the child what behaviors he/she should exhibit (e.g., taking a bite) in order to receive reinforcement. Choices between nonpreferred foods are sometimes given in order to allow the child more control over what food he/she eats. Finally, in sequential presentation, the feeder presents a nonpreferred food first, and then allows the child to eat a preferred food if he/she consumes the nonpreferred food.

Direct Behavioral Therapy

   Escape extinction (EE) and differential reinforcement (DR). Freeman and Piazza (1998) conducted one of the earliest studies that laid the foundation for further research on behavioral treatment packages for food refusal. They used a treatment package consisting of stimulus fading, reinforcement, and EE to increase food consumption and decrease IMB in a 6-year-old girl with ASD and food refusal. They used a multielement design to assess the effectiveness of the treatment package on the child's average compliance and consumption per meal. Freeman and Piazza (1998) used negative reinforcement in the form of termination of the meal, and positive reinforcement in the form of verbal praise upon consumption of food. The researchers implemented

stimulus fading by increasing the amount of food required to be eaten to receive reinforcement by 5% after the participant consumed 80% of her food for 3 meals in a row. The experimenters implemented EE by giving the participant a partial physical prompt (e.g., guiding her hand to the spoon) if she did not comply by consuming a bite, and then a full physical prompt (e.g., guiding her hand to bring the spoon to her mouth) if she still did not comply after the partial prompt. The intervention lasted for 12 weeks, with two to four treatment meals per day lasting for either 45 minutes or until the entire plate was consumed.

Freeman and Piazza (1998) observed an increase in the participant's consumption of food from zero grams per week to 150 grams by the end of the intervention. Additionally, they observed an increase in the child's average compliance per meal from zero during baseline to an average of 80% during the treatment. Despite the gains during the intervention, it is unclear whether the eating behaviors generalized to the participant's home setting because the study was completed at the hospital. Nonetheless, positive reinforcement and EE appeared to be a promising treatment package for a young child with ASD and feeding difficulties.

Extending these same techniques to children with food refusal who did not have ASD, Piazza, Patel, Gulotta, Sevin, and Layer (2003) demonstrated the benefits of implementing EE with and without positive reinforcement to treat food refusal in four boys from ages 23-months- to 4-years-old. They implemented a multielement design to assess whether positive reinforcement contributed to the effects of EE with regards to increasing bite acceptance and mouth clean, and decreasing IMB and negative

vocalizations. Acceptance was defined as the entire spoonful of food entering the child's mouth within 5 seconds of presentation. Mouth clean was defined as no remaining food in the child's mouth within 30 seconds of acceptance. The intervention involved a total of 10 to 15 minutes of eating time per session, with 6 to 12 sessions per day for two of the boys. One other boy received 10 to 30 minutes of eating time per session, with 12 to 18 sessions per day. The fourth boy was presented with 30 bites per session, with an average of six sessions per day.

In the escape baseline, the therapist removed the bite of food from the child if he engaged in any IMB. The therapist then implemented "differential positive reinforcement for mouth clean plus escape (DRA plus escape)" (Piazza et al., 2003, p. 313), in which the therapist gave the children reinforcement (e.g., time with a preferred toy) if he accepted the bite and had a clean mouth. Next, Piazza et al. (2003) implemented the EE condition, which was done with physical guidance for two of the participants and with NRS for the other two. The decision of which type of extinction method to use was based on parent preference. In the final condition, the therapist implemented DRA plus EE.

For all four children, positive reinforcement alone was not effective in increasing their consumption of food (Piazza et al., 2003). Across the four children, the researchers observed an increase in food consumption when EE was implemented, regardless of whether positive reinforcement was also implemented. However, positive reinforcement appeared to reduce the amount of IMB exhibited by the participants. These results from Piazza et al. (2003) suggest that EE is more effective in increasing food consumption

compared to positive reinforcement, but positive reinforcement may have value in decreasing IMB when it is added to EE.

In a demonstration of the efficacy and generalizability of a behavioral treatment package, Barnhill, Tami, Schute, Hewitson, and Olive (2016) utilized reinforcement, shaping, prompting, and EE to treat a 28-month-old female with ASD and feeding difficulties, who had been unsuccessfully treated by an occupational therapist. Barnhill et al. (2016) implemented a clinical case study to assess the child's bite acceptance and consumption, as well as her IMB throughout the intervention. The behavioral treatment was implemented over 4 days, with three sessions per day lasting one hour each. On day two, the child's mother took over implementation during lunch and on day three, the sessions were moved to the hotel room and included the child's father and grandmother. Finally, on day four, the sessions were conducted in a restaurant in order to generalize the child's skills.

The researchers used shaping to allow the participant immediate reinforcement and slowly increase the requirements to receive rewards. They used EE in the form of both NRS and light physical prompting. Additionally, they used DRA, in which the participant received verbal praise and access to her preferred reinforcer when she engaged in the target behavior (i.e., consuming a specific amount of food). Upon completion of the intervention, the researchers observed increases in the child's food consumption and decreases in her IMB. Initially, she ate 18 out of 22 bites and spit out the remaining four. On the following three days, she consumed from 25 to 70 bites and only spit out one. This study demonstrates the efficiency and generalizability of these

behavioral techniques, specifically EE and reinforcement, in the treatment of food refusal or selectivity with children with ASD.

Modeling vs. EE. Fu, Penrod, Fernand, Whelan, Griffith, and Medved (2015) evaluated the effectiveness of modeling versus modeling DR versus modeling DR and EE in the form of NRS. The researchers used a "non-concurrent multiple-baseline design across participants combined with a multi-element design consisting of alternating baseline and treatment conditions" (Fu et al., 2015, p. 775) to assess the effects of the intervention on bite acceptance, consumption, and IMB. The participants in the study were 9- and 10-year-old boys with ASD and limited diets. There was one adult model and two feeding therapists, who were graduate students trained in ABA, implementing the procedures. The intervention included three to four sessions twice a week for a total of 37 sessions (including the follow-up). The researchers conducted a preference assessment to identify nonpreferred foods for both boys, which were then split up into two groups (Group A and Group B). They identified preferred foods to be used as reinforcers during the intervention.

In the modeling alone condition, the therapist presented foods from both Groups A and B. If the child did not take a bite within 5 seconds, the model took a bite, and the child did not receive any contingency for consumption or refusal of food. In the modeling DR condition, the therapist presented the food to the model and participant, and said, "Let's try some [food]. If you finish all your [food], you can pick one of your favorite treats, and you can also play with [preferred item]" (Fu et al., 2015, p. 777). When the model or participant cleared their plate, they received a bite of the preferred food and

access to a preferred item. The modeling DR and NRS condition was the same, but the therapist added, "But if you don't eat your [food], I will have to help you" (Fu et al., 2015, p. 777). If the child did not take a bite within 5 seconds, the model acted out the participant's IMB, and the therapist implemented NRS on the model. The NRS procedure was not necessary for either participant because they responded when the model was exposed to it. The researchers conducted follow-up sessions 4-8 weeks after the treatment for one participant, and 4 weeks for the other, and trained the parents.

During the modeling DR component, the researchers observed an increase in acceptance (0% to 67% of the foods) for one child, but they only observed the second child take one bite in the first session. Both participants ate 100% of the target foods in the modeling NRS and DR condition, and the researchers observed a decrease in their IMB (from 16.19% and 22.57% in baseline to 1.39% and 0.69% in modeling DR and NRS, respectively). This study shows that modeling DR and NRS is more effective than modeling alone for increasing food consumption in children with ASD. Furthermore, because the therapists never had to implement NRS with the participant, modeling EE may be a viable alternative to implementing it directly on the child.

Choice. Fernand, Penrod, Fu, Whelan, and Medved (2016) implemented a multi-element design with an initial baseline phase to assess the effects of choice on the participants' (7-year-old boy and 6-year-old girl with ASD) bite acceptance, mouth clean, and IMB. The researchers conducted a preference assessment to identify the children's nonpreferred foods. During baseline, the experimenter chose four bites from two of the nonpreferred foods to put on the child's plate and told him/her to eat. In the Choice 1

condition, the therapist presented a set of nonpreferred foods, and told the participant to choose two different foods from that set to eat (Fernand et al., 2016). If Choice 1 was not effective, the therapist implemented the Choice 2 condition, in which the therapist replaced one of the nonpreferred foods with a more preferred food. The Choice 1 plus NRS condition was identical to Choice 1, but if the child did not take a bite within 5 seconds, the therapist gave a vocal prompt, then a gestural prompt, and then implemented NRS (Fernand et al., 2016). In the NRS alone condition, the therapist did not give the participant a choice between the foods.

The boy that participated in this study consumed five previously nonpreferred foods overall, and the girl consumed 13 previously nonpreferred foods overall. However, she exhibited "the largest extinction burst within the NRS-alone condition and emitted lower levels of problem behavior during the Choice 1 + NRS condition" (Fernand et al., 2016, p. 95). This implies that allowing a choice between nonpreferred foods may have mediated the severity of her IMB when paired with NRS. Therefore, when EE is necessary to increase consumption of food, antecedent interventions such as choices may need to be included in order to decrease the effects of IMB. The researchers did not assess the acceptability of these interventions, but it could provide valuable information for use when working with families of children with ASD exhibiting food refusal.

Sequential presentation. Pizzo, Coyle, Seiverling, and Williams (2012) examined the effects of sequential presentation of preferred and nonpreferred foods using a multiple probe design across maintenance meals. They assessed the intervention's effects on the participants' bite acceptance, successful bites (e.g., no gagging, expulsion

or vomiting), and IMB. The experimenters treated the 16-year-old boy with ASD in his residential treatment facility. Sessions lasted from 20 to 30 minutes, with 55 sessions total. The experimenters identified nonpreferred foods to be placed on Plate A and preferred foods on Plate B (Pizzo et al., 2012). In the baseline condition, the experimenter presented only Plate A with four different foods and gave the participant verbal prompts to eat every 30 seconds; sessions lasted for 10 minutes. In the intervention phase, the experimenter presented Plate A first and told the participant that he could take a bite from Plate B after he took a bite from Plate A. Additionally, the experimenter gave verbal praise when the participant took a bite form Plate A. Upon mastering a set criterion for each type of food, the plates were moved to maintenance meals, which were conducted by the facility staff. In the probe meals, the direct staff presented the participant with novel and nonpreferred foods on one plate, without using the Plate A-Plate B procedure.

The participant mastered 14 new foods and gained 12 pounds through the intervention. The participant's "frequency of combined maladaptive behavior averaged 16.67 during baseline and decreased, averaging 1.59 across Plate A-Plate B treatment sessions" (Pizzo et al., 2012, p. 181). This provides evidence that food consumption and IMB can improve without the use of EE. The procedure was also simple enough for the participant's caretakers to properly implement, showing promise for its use in other settings. However, this study did not conduct an assessment of the caretakers' perceptions of the acceptability of the intervention.

Shaping and DR. Hodges, Davis, Crandall, Phipps, and Weston (2017) created an intervention that utilized both DR and shaping without EE to increase consumption of

food in a 7-year-old boy and 8-year-old girl, both diagnosed with ASD. They implemented a "combined multiple baseline across participants plus changing criterion design" (Hodges et al., 2017, p. 2473) to measure the effects on the participants' food acceptance and consumption of new foods. The sessions lasted for one hour each twice a week and were conducted in an ABA clinic.

Hodges et al. (2017) presented individual bites of food in muffin tins to the participants and instructed them to eat. During baseline, all muffin tins were white, but during the intervention phase, the tins were colored to indicate opportunity for reinforcement. The shaping procedure involved four different levels of food acceptance, which included (0) "total refusal", (1) "touches food to lips", (2) "puts food in mouth, does not swallow food" and (3) "swallows food" (Hodges et al., 2017, p. 2473). During each level, the experimenter gave the participant instructions for eating and how to receive reinforcement (e.g., "Touch chicken to your lips and then you get to build the Titanic!"; Hodges et al., 2017, p. 2473). If the participant engaged in the target behavior, the experimenter gave verbal praise and allowed him/her to have 30 seconds with a preferred item. However, if he/she did not engage in the target behavior, the experimenter gave a verbal prompt every 15 seconds to remind him/her about the contingency. After the participants mastered the shaping levels, the experimenter introduced multiple foods to be consumed in the same trial in order to receive reinforcement.

Neither participant consumed any nonpreferred foods in the baseline phase. After the intervention, the young boy mastered four previously nonpreferred foods within an average of ten trials, while the young girl mastered her previously nonpreferred foods

within an average of 17 trials (Hodges et al., 2017). While this procedure was effective for these two children to increase their food consumption, the experimenters failed to take note of any IMB that were occurring. An effective treatment package should focus not only on increasing food consumption, but also on decreasing IMB.

Based on the current literature, behavioral treatments involving EE appear to be effective methods to treat food refusal or selectivity in young children with ASD (e.g., Barnhill et al., 2016; Freeman & Piazza, 1998; Piazza et al., 2003). Positive reinforcement has been found to help decrease the effects of IMB by reinforcing target behaviors (e.g., Barnhill et al., 2016; Freeman & Piazza, 1998; Piazza et al., 2003). The combination of EE and positive reinforcement is highly effective for treating feeding problems in children with ASD. Additionally, treatment packages that include other techniques such as modeling (Fu et al., 2015), shaping (Barnhill et al., 2016; Freeman & Piazza, 1998; Hodges et al., 2017), providing choices (Fernand et al., 2016), and sequential presentation (Pizzo et al., 2012) have proven to be effective treatment methods to increase food consumption and decrease IMB. However, interventions in the previous studies were all implemented by trained therapists, and only three of the studies involved training caregivers (i.e., Barnhill et al., 2016; Fu et al., 2015; Pizzo et al., 2012). While direct behavioral feeding therapy is clearly effective for these children, there is a question of generalization. The child might have greater improvements if the caregivers are also trained in these procedures and are actively involved in the therapy sessions.

Behavioral Parent Training

Sharp, Burrell, and Jaquess (2014) designed a parent training program specifically designed to treat feeding problems in children with ASD. The program is called "The Autism MEAL Plan- a curriculum specifically developed to assist caregivers to Manage Eating Aversions and Low intake among children with ASD" (Sharp et al., 2014, p. 714). It is a purely educational program for parents, with no direct services with the child included. The program consists of eight sessions, each one hour long. Some topics that are discussed in the program include "general behavior management strategies applied during meals, specific interventions for feeding problems associated with ASD, and strategies for promoting self-feeding" (Sharp et al., 2014, p. 715). The researchers used a waitlist control design to assess the program's feasibility, social acceptability, and effectiveness.

Participants included nineteen families with a child with ASD between the ages of 3 and 8 years and reported IMB based on the Brief Autism Mealtime Behavior Inventory (BAMBI). The participants were randomly assigned to the treatment group (10 participants) and the waitlist group (9 participants). The waitlist group received non-feeding related information via email while the treatment group received instruction. When the treatment group completed the curriculum, the waitlist group was offered the same program. Both groups completed the Parenting Stress Index-short form (PSI-SF) before and after the program. After the program, the parents rated the social validity of the Autism MEAL Plan.

Results from the BAMBI post-intervention did not show substantial changes in child feeding behaviors or variety in the children's diets. However, the Autism MEAL Plan (Sharp et al., 2014) decreased parent-reported stress, and it appeared socially valid to the parents. One limitation of this study is that the parents did not complete any in-situ practice feeding their children, which likely led to the lack of improvements in their children's IMB.

Avoidant/restrictive food intake disorder (ARFID) presents lack of interest in eating or food, avoidance of food, or concerns about the consequences of eating (American Psychiatric Association, 2013). Murphy and Zlomke (2016) created a behavioral parent-training intervention for a 6-year-old girl with ARFID in order to reduce her IMB and increase her acceptance of novel foods, as well as improve her mother's confidence in feeding her child. The program was 17 sessions, each lasting one hour. The topics included modeling, rewarding, DR, EE in the form of NRS, and an in-vivo parent feedback and coaching session. The researchers instructed the mother to use DR in the form of attention when her child engaged in appropriate mealtime behaviors and to ignore her IMB (Murphy & Zlomke, 2016).

The participant's mother completed the Behavioral Pediatrics Feeding Assessment Scale (BPFAS) at the beginning and end of the treatment, which showed that the child's IMB decreased substantially post-intervention. Upon completion of the intervention, Murphy and Zlomke (2016) observed the child consume twice as many types of food per week, and she no longer met criteria for ARFID. Additionally, the mother reported that she felt confident in continuing the intervention at home.

Barnhill et al. (2016) implemented an effective treatment package consisting of shaping, EE, and DR to treat feeding problems in a young child. The therapists also trained the child's mother to implement the treatment at home. The parent training component included modeling the procedures and live coaching and feedback. Then, the therapists attempted to generalize the child's skills to her natural environment and other caregivers. The generalization component was successful, as the child's feeding improvements generalized to eating with her parents and grandmother as well as to other settings. However, the mother reported that she experienced high stress levels during the treatment. Further research should consider how the parents might be affected by the components of feeding therapy.

Bui, Moore, and Anderson (2013) paired EE with reinforcement in parent training to increase acceptance of food in a 2-year-old girl with ASD, pervasive developmental delay, and feeding problems. They utilized a multiple baseline across settings design to evaluate the effectiveness of EE and reinforcement. The participant only ate when fed by her mother in a highchair and often refused food or did not chew before swallowing. The researchers instructed the child's mother to give verbal praise when her child accepted a bite of food and to use NRS if she did not accept. After the mother completed training, the intervention began during breakfast and gradually added lunch and dinner after the child met criterion for acceptance for each meal. The intervention was completed after 14 sessions of breakfast, lunch, and dinner. Follow-up sessions were conducted one week later.

Bui et al. (2013) successfully trained a mother to increase her child's food acceptance across all three meals. For breakfast, the average bite acceptance during baseline was 59% and in treatment was 87%. For lunch, the average bite acceptance during baseline was 58% and in treatment was 88%. Finally, for dinner, the average bite acceptance during baseline was 46% and in treatment was 75%. The follow-up session showed that the child's behavior gains were maintained (breakfast 91%, lunch and dinner 84%), and the researchers observed generalization of her appropriate eating behaviors to other settings and caregivers. Additionally, the child's mother rated the procedure highly socially acceptable. This program differs from the program that Sharp et al. (2014) created because not only was it considered socially acceptable to the parent, but it was also effective in increasing the child's acceptance of food.

Collectively, these studies show that training parents in behavioral techniques to improve their child's eating difficulties can be valuable for improving the child's eating behaviors and for increasing the parents' confidence and competence. Sharp et al. (2014) created a socially acceptable parent education program that was successful in decreasing parent stress, although not resulting in child behavior changes. Barnhill et al., (2016) combined direct therapy with parent training to effectively increase a child's food consumption using shaping, EE, and DR. These general behavioral methods can be made simple and easy for the parents to learn how to implement at home in order to create a more efficacious treatment package for the child. Behavioral-parent training alone can also be effective when it includes in-situ and feedback sessions for the parents (Bui et al., 2013; Murphy & Zlomke, 2016). The studies by Bui et al. (2013) and Murphy and

Zlomke (2016) show the importance of including those feedback sessions for the parents.

Parent training with modeling, practicing, and feedback can increase the likelihood that

behavioral gains will be maintained and generalized to other settings and individuals.

Each of the studies indicated that parents and caregivers rated the interventions as

socially acceptable, an important aspect of treatments for caregivers when they are

deciding which treatments to use with their children.

Teacher-Implemented Behavior Therapy

Both direct therapy and parent-training behavioral therapy have been

demonstrated to be efficacious treatments of food refusal or selectivity in children with

ASD. The utility of these methods by teachers, who may be in a position to deal with

children's food refusal and selectivity in school settings, needs to be more fully

investigated. If teachers learn how to properly implement effective treatments, it could

increase the likelihood of both maintenance and generalization for the child. Behavioral

methods such as prompting, reinforcement, EE, and several others have been applied to

school settings in order to increase food consumption in children with ASD. Peterson and

Ibanez (2018) created guidelines for teachers to assess and treat food selectivity in

children with ASD. They encouraged teachers to meet with the child's caregivers and use

an interdisciplinary approach when starting assessment, consulting a physician, dietitian,

speech or occupational therapist, and/or a behavior analyst to get the full array of the

child's background and problem areas regarding eating or feeding habits (Peterson &

Ibanez, 2018). Peterson and Ibanez (2018) discussed ABA interventions for food

selectivity, such as EE (in the form of NRS) and antecedent- and positive reinforcement-

based methods. They stated that the antecedent intervention involves creating a structured mealtime environment for the child. They also stated that the correct use of positive reinforcement involves using the appropriate type of reinforcer, giving or withholding reinforcement appropriately, allowing access to the reinforcer for the appropriate amount of time, and immediately giving reinforcement after the target behavior has been observed (Peterson & Ibanez, 2018).

Peterson & Ibanez (2018) created thorough guidelines for teachers to use in the assessment and treatment of food selectivity. However, they did not test out these guidelines in an experimental study, so it is unclear whether a description of each step is sufficient enough for a teacher to implement an intervention. Knox et al. (2012) trained teachers to use behavioral methods in a specialized school setting to increase the amount of food that a 16-year-old girl with ASD consumed. The researchers implemented a changing criterion design to assess the student's increase in percentage of meals consumed. The student's primary teacher or assistant teacher implemented the intervention either in her classroom or cafeteria during lunch time. The intervention included positive reinforcement, prompting, and demand (or stimulus) fading and was 27 sessions long, each session lasting 30 minutes.

Prior to the intervention, the first author trained the teachers using a written plan, demonstration of the procedures, and a practice session with feedback (Knox et al., 2012). The teachers gave the student verbal praise when she picked up the food, put it in her mouth, and chewed and swallowed. She received a sticker and a preferred tangible item after consuming all foods that were presented during the session. The teachers used

paced prompting (e.g., instructed her to eat) if the student did not take a bite within 30 seconds. Additionally, they used demand fading to gradually increase the requirement needed to receive reinforcement. The teachers increased the amount of food placed on the student's plates by 20% until she reached 100%. The researchers conducted follow-up sessions 2 weeks, 6 weeks, and 7 months after the treatment was completed.

Knox et al. (2012) observed an increase in the student's food consumption from 20% to 100% by the end of the intervention. Additionally, her consumption remained at 100% in all three follow-up sessions. The authors did not formally collect data on the student's IMB but reported that she "only displayed mild problem behaviors" throughout the intervention (Knox et al., 2012, p. 413). After the intervention, the head teacher scored 88 on the Intervention Rating Profile (IRP-15), which indicates very high social acceptability (Knox et al., 2012). Knox et al. (2012) created a socially acceptable and effective treatment plan for an adolescent with ASD and food selectivity, which may provide a basis for further research to increase effectiveness in teacher-implemented interventions.

By providing teachers with the knowledge and skills necessary to treat food selectivity or food refusal in the school setting, the child could receive treatment in multiple settings, which may increase skill generalization and maintenance. Peterson and Ibanez (2018) provided guidelines for teachers to intervene in feeding difficulties in their classrooms. However, they did not determine experimentally if they were clear and simple enough for teachers to follow. Knox et al. (2012) applied behavioral techniques in a specialized school with several teachers implementing the intervention. The

intervention was effective for the child in that setting and perceived as socially acceptable to the teachers. Thus, it appears to be an efficacious treatment package for teachers to use with adolescents. However, there is little research regarding these techniques being used by early childhood teachers. Further research should apply the guidelines and techniques from Peterson and Ibanez (2018) and those implemented by Knox et al. (2012) in an early education setting to determine if teachers can implement an effective treatment for children with feeding difficulties. Additionally, evaluating teachers' perceptions of the acceptability of various components of these behavioral interventions would be a helpful addition to the literature. Their perceptions may be related to their willingness to participate in such interventions, and the likelihood of doing so appropriately.

Summary of Behavioral Techniques

The current literature provides a large amount of support for the effectiveness of behavioral techniques in treating feeding problems in children with ASD. Direct behavioral therapy implemented by trained therapists that utilizes EE is extremely effective, however, it is unclear how well and consistently other individuals, such as caretakers, can implement these techniques successfully. Freeman and Piazza (1998) used stimulus fading, reinforcement, and EE to increase food consumption, food variety, and compliance during mealtimes. However, they did not comment on any instances of IMB exhibited by the child, nor did they note the parent's acceptability of the procedures. Piazza et al. (2003) found that positive reinforcement adds value to EE because it decreases IMB. Furthermore, they allowed the parents of the participants to choose which type of EE they were to use on their child (NRS or physical guidance), although they did

not explain why each parent chose one method over the other. Barnhill et al. (2016) and Peterson et al. (2016) further supported the use of EE with positive reinforcement, however they failed to obtain measures of social acceptability on the interventions. Therapist-implemented interventions prove to be effective, but social acceptability is an important factor when deciding what technique to use.

Most effective behavioral packages include EE in some way, however, treatments that implement techniques other than EE may also be effective for some children. These techniques include modeling (Fu et al., 2015), providing a choice (Fernand et al., 2016), sequential presentation (Pizzo et al., 2012), and DR plus shaping (Hodges et al., 2017). Fu et al. (2015) and Fernand et al. (2016) found that pairing EE with another method is more effective than not using EE. On the other hand, Pizzo et al. (2012) and Hodges et al. (2017) created successful interventions to increase food consumption without using EE at all. The literature is mixed with regards to the use of EE versus another technique. However, because EE can be perceived as an aversive or stressful technique to implement, parents, teachers, and others may choose another method to try first. Further research should assess what techniques these individuals may prefer and why.

Several parent training programs evaluated the opinion of parents on various techniques (Sharp et al., 2014; Bui et al., 2013; Murphy & Zlomke, 2016). Parents rated the Autism MEAL Plan by Sharp et al. (2014) highly socially valid, even though there was not a meaningful change in their children's IMB. Additionally, the parents reported a decrease in stress levels after receiving training. Bui et al. (2013) directly trained one mother using EE and positive reinforcement to increase her child's food acceptance, and

she rated the treatment highly socially valid. Finally, Murphy and Zlomke (2016) successfully trained a mother of a child with ARFID because at the end of the intervention, the child no longer met diagnostic criteria. Furthermore, the child's IMB decreased and food consumption increased, and her mother reported that she was more confident in feeding her child. Parent training is an important component to include in treating feeding problems because often, the parents are the ones who are feeding the child and experience stress and discomfort in the process. If the parents believe a treatment to be socially acceptable and observe or directly experience its efficacy, they may be more likely to implement it successfully, and their child will likely make more improvements and maintain their gains for a longer period of time.

When treating children with feeding difficulties, one must consider all settings in which the child will be eating. This includes the school setting, so it is important for teachers to receive some training in how to deal with these problems. Additionally, the teachers must perceive the treatment to be socially acceptable to use in the school setting. Knox et al. (2015) created a highly acceptable treatment to be implemented by teachers in a specialized school using positive reinforcement, prompting, and demand fading. However, the experimenters did not directly measure the participant's IMB. They anecdotally reported that her behaviors improved throughout the treatment. Collecting data on IMB would add value to the effectiveness of this intervention.

Purpose of the Current Study

The purpose of the current study was to compare parents' and pre-professional students' perceptions of the social acceptability of two treatments—escape extinction and

differential reinforcement—for children with ASD who engage in food refusal or food selectivity. The study included students in training as educators and as various types of therapists who might be involved in working with children with ASD and parents of children with ASD. Individuals who do not know much about behavioral methods to treat food refusal and selectivity were predicted to initially rate them as less likely to use for a child with these problems. When the participants learn more about the behavioral treatments via reading a description or watching a video example, their perceptions about the efficacy and acceptability of each method were predicted to increase from their initial rating. Additionally, the student participants who are in pre-therapy majors (i.e., occupational therapy, physical therapy, or speech language pathology) were predicted to rate the behavioral methods as more acceptable than the participants who are parents or who are education students, most of whom would likely have minimal knowledge and exposure to such interventions. Participants who viewed videos of behavioral methods being implemented were predicted to rate them more positively than the participants who only read about them. Finally, participants who viewed the videos of behavioral treatments were predicted to rate the DR more positively than EE.

CHAPTER II: METHOD

Participants

The sample contained 50 participants, including parents of children between the ages of 2 and 10 diagnosed with ASD ($n = 10$), as well as pre-professional students in education ($n = 19$) and therapy ($n = 21$) fields. Parents were recruited through seven different agencies that provide services for families of individuals with disabilities in the Middle Tennessee area. The ten parents who participated were contacted through Tobenski Behavior Analysis Services, Inc and Autism and Behavior Consulting Services, LLC. Students were recruited from different majors at Middle Tennessee State University, including elementary education, special education, early childhood education, pre-professional occupational therapy, pre-professional physical therapy, and speech-language pathology. The average age of participants was 26.23 years ($SD = 9.01$). Parents were significantly older ($M = 38.10$, $SD = 4.36$) than both education ($M = 25.88$, $SD = 9.77$) and pre-professional ($M = 20.86$, $SD = 2.27$) students, $F(2, 48) = 25.26$, $p <$ .001. Most of the participants were Caucasian (86%) and female (92%). Additionally, most participants reported to have had some college education (62%) or held a bachelor's degree (22%). Table 1 provides a summary of the demographic data for the full sample and for each group.

Table 1

Demographic data by full sample and by group

Variable	Full Sample (*n* = 50)	Parents (*n* = 10)	Therapy (*n* = 21)	Education (*n* = 19)
	%	*%*	*%*	*%*
Ethnicity				
Caucasian	86%	90%	85.7%	84.2%
African American	6%	0%	4.8%	10.5%
Asian	2%	0%	0%	5.3%
Hispanic	4%	10%	4.8%	0%
Other	0%	0%	0%	0%
Biracial	2%	0%	4.8%	0%
Gender				
Male	8%	20%	0%	10.5%
Female	92%	80%	100%	89.5%
Education				
GED/High school	4%	0%	9.5%	0%
Some college	62%	10%	76.2%	73.7%
Associate's degree	8%	0%	4.8%	15.8%
Bachelor's degree	22%	80%	4.8%	10.5%
Master's degree	4%	10%	4.8%	0%
Child with ASD				
Yes		100%		
No		0%		
Child Food Problem				
Yes		80%		
No		20%		

Measures and Materials

      Demographic questionnaire. Parents and professionals in training completed a demographic form (see Appendices A and B) to provide background information for describing the sample and to determine group affiliation (i.e., parent, student groups). Parent demographic questionnaires included questions related to the parent's gender, age, ethnicity, level of education, and whether they have a child with ASD. Student demographic questionnaires included questions related to gender, age, ethnicity, education, and their current major.

      General Knowledge Survey. This survey was used for descriptive purposes to collect information about the participants' level of knowledge about ASD and food selectivity or refusal (see Appendix C). The survey also asked participants to rate how much they know about various treatments for these problems, as well as how willing they would be to use each treatment. This survey has similar structure and language as on the Treatment Evaluation Inventory-Short Form (TEI-SF; Kelley, Heffer, Gresham, & Elliott, 1989).

      Vignette. The vignette describes the child's problem behaviors, diet, and previous evaluations (see Appendix D). This was used as a case example for the two types of treatments that were described.

      Descriptions and videos of behavioral interventions. Written descriptions explained procedures using an escape extinction (EE) paradigm and a differential reinforcement (DR) paradigm. Both descriptions also included efficacy data for each method (see Appendix E). The videos were related to the written descriptions and showed

each procedure being implemented (see Appendix F for links). The EE video showed the use of physical guidance to bring and hold the spoon to the child's mouth in order for him to take a bite. The DR video showed the use of verbal praise after the child takes a bite of food.

Treatment Evaluation Inventory-Short Form (TEI-SF). The TEI-SF has nine items that assess the acceptability of a given treatment (see Appendix G and H). Each item is rated on a 5-point Likert scale, where 1 represents strong disagreement and 5 represents strong agreement. Scores on the TEI-SF range from 9 to 45 and represent a total score after reverse scoring item 6. A high score on this form indicates high acceptability of the given treatment. The TEI-SF has strong psychometric properties, with good internal consistency and validity (Kelley, Heffer, Gresham, & Elliott, 1989).

Comparison Survey Question. Both groups answered a comparison question (see Appendix I) about EE and DR after rating each one independently. The question asked the participant to choose which treatment they would be more willing to use when compared with the other.

Procedure

The participants were randomly divided into two groups within their respective roles (i.e., parents, education students, therapy/pre-professional students). One group only received a written description of the behavioral interventions, and the second group received a written description as well as watched a video for each intervention. After providing consent (see Appendix J), all participants completed the demographic questionnaire and general knowledge survey. The participants read the vignette of a child

before they received treatment descriptions. They then read about one of the behavioral

interventions and its efficacy (i.e., EE or DR), then watched the video for that

intervention (if in the video group), then completed the TEI-SF regarding that treatment.

They then read the other treatment information, watched the video, and completed the

TEI-SF for the second intervention. The order of the interventions was counterbalanced

across participants to control for potential order effects.

Design

A 3 (parents, education students, therapy/pre-professional students) X 2 (written

description vs. written description plus video) group design was implemented.

CHAPTER III: RESULTS

Tables 2 provides a summary of the descriptive data for the General Knowledge Survey items. The participants reported a mean rating of 3.02 regarding their knowledge of ASD and a mean rating of 2.34 regarding their knowledge of food refusal. Additionally, they reported a mean rating of 3.26 regarding their experience with ASD and a mean rating of 2.24 regarding their experience with food refusal. They reported little to no experience or familiarity with various treatments for food refusal, with mean ratings ranging from 1.66 – 2.16. However, they were willing to try these treatments for food refusal and selectivity (ratings ranging from 3.42-4.24) despite their lack of knowledge about them.

It was hypothesized that prior to receiving information about treatments and watching the videos, knowing less about the behavioral techniques (both EE and DR) would be associated with being less willing to use them. On the General Knowledge Survey, item pair #8 and #13 and item pair #9 and #14 were used in these analyses (i.e., how much do you know about the technique and how willing are you to use the technique). Pearson's Correlation Coefficients were calculated and indicate a significant positive correlation for EE, $r = .31$, $p = .03$, $N = 50$, and for DR, $r = .32$, $p = .02$, $N = 50$. Knowing less about the behavioral techniques was significantly correlated with less willing to use them, thus, this hypothesis was supported for both EE and DR.

Table 2

Descriptives for General Knowledge and Experience Items

Item	Full Sample (*n* = 50)	Parent (*n* = 10)	Therapy (*n* = 21)	Education (*n* = 19)
	M(SD)	*M(SD)*	*M(SD)*	*M(SD)*
ASD Training	3.02(1.06)	3.70(1.25)	2.81(.93)	2.89(.99)
ASD Experience	3.26(1.32)	4.10(.99)	2.67(1.28)	3.47(1.26)
Knowledge of Food Refusal Treatment	2.34(.92)	2.20(.92)	2.38(.87)	2.37(1.01)
Experience with Food Refusal Treatment	2.24(1.15)	3.10(1.20)	1.81(.87)	2.26(1.20)
Experience with:				
Medical Treatments	1.66(.94)	1.80(.92)	1.43(.81)	1.84(1.07)
Nutritional Treatments	1.74(.90)	2.20(.92)	1.48(.75)	1.79(.98)
Sensory Treatments	2.16(1.08)	2.40(.84)	2.05(1.20)	2.16(1.07)
EE	1.98(1.15)	2.60(1.43)	1.67(.86)	2.00(1.20)
DR	2.16(1.15)	2.40(1.27)	1.81(.81)	2.42(1.35)
Willing to use:				
Medical Treatment	3.62(.90)	3.20(1.03)	3.71(.96)	3.74(.73)
Nutritional Treatment	4.24(.63)	4.20(.63)	4.33(.66)	4.16(.60)
Sensory Treatment	4.22(.62)	4.30(.48)	4.24(.70)	4.16(.60)
EE	3.42(.70)	3.40(.84)	3.52(.68)	3.32(.67)
DR	3.72(.67)	3.70(.48)	3.62(.74)	3.84(.69)

Note. Scale of 1 -5 with lower scores indicating less experience or familiarity with the topics/method or less willingness to use the method.

It further was predicted that when the participants were exposed to the video and/or description and efficacy information about the behavioral treatments (EE and DR), their willingness to use both techniques would increase from their initial ratings. Items #13 and #14 on the General Knowledge Survey and item #2 on the TEI-SF for both EE and DR were used in these analyses. A dependent samples t-test was used to test this hypothesis. Results suggest no significant increase in willingness for EE item #13 ($M = 3.42$, $SD = .70$) and TEI-SF #2 for EE ($M = 3.63$, $SD = 1.03$), $t(49) = -1.28$, $p = .21$. Willingness to use DR increased significantly between item #14 ($M = 3.72$, $SD = .67$) and TEI-SF #2 ($M = 4.50$, $SD = .61$), $t(49) = -6.57$, p > .001.

Regarding group affiliation, the participants in the therapy group (OT, PT, SLP) were predicted to have a more positive perception of the efficacy of behavioral techniques than the participants in the parent or education groups. Total TEI-SF scores for the EE and the DR interventions were used in these analyses. One-Way ANOVAs comparing groups on the total TEI-SF for EE and DR indicated no significant group differences for EE, $F(2, 49) = .08$, $p = .93$ or for DR, $F(2, 49) = 1.49$, $p = .24$. Table 3 provides the means and standard deviations of TEI-SF scores for both EE and DR by group.

Exposure to the techniques implemented on video was predicted to impact participants positively, regardless of major/parent grouping. Specifically, it was predicted that participants who were exposed to the videos of the behavioral treatments would rate them higher on the TEI-SF (thus more acceptable) than those who only read about them. Total scores on the TEI-SF were used in this analysis. Independent Samples t-tests were calculated, showing no difference between exposure type for EE, $t(48) = -.95$, $p = .35$, or

for DR TEI-SF scores, $t(48) = .69$, $p = .50$. Table 4 provides the means and standard

deviations by type of exposure group for EE and DR TEI-SF scores.

Table 3

Descriptives for the TEI-SF for Differential Reinforcement (DR) and Escape Extinction (EE) by parent/major group

Variable	Full Sample ($n = 50$)	Parent ($n = 10$)	Therapy ($n = 21$)	Education ($n = 19$)
	M(SD)	*M(SD)*	*M(SD)*	*M(SD)*
Total TEI-SF for DR	37.72(4.80)	40.00(3.02)	37.38 (5.31)	36.90 (4.81)
Total TEI-SF for EE	30.56(7.01)	30.90(4.15)	30.86 (8.74)	30.05 (6.31)

Table 4

Descriptives for the TEI-SF for Differential Reinforcement (DR) and Escape Extinction (EE) by Video Exposure Group

Variable	Full Sample ($n = 50$)	Video Group ($n = 21$)	Information Group ($n = 19$)
	M(SD)	*M(SD)*	*M(SD)*
Total TEI-SF for DR	37.72(4.80)	37.27(5.26)	38.21(4.30)
Total TEI-SF for EE	30.56(7.01)	31.46(7.70)	29.58(6.19)

Finally, it was hypothesized that participants who viewed the videos would rate DR higher than EE (thus more acceptable) on the TEI-SF. Total score on the TEI-SF was used in this analysis, and a dependent samples t-test was used to test this hypothesis. Results indicate that there was a significant difference in ratings between DR and EE, $t(25) = -4.84$, $p < .001$, with DR ($M = 37.27$, $SD = 5.26$), rated significantly higher than EE ($M = 31.46$, $SD = 7.70$) among those who saw the videos.

Although no specific hypotheses were proposed, an additional analysis was conducted to determine which treatment the participants preferred overall. Out of the 50 participants, 44 preferred DR and only six preferred EE. A Chi-Square analysis indicates that those who preferred EE over DR were more likely to have watched the video than those who preferred DR, $X^2(1, N = 50) = 8.60$, $p = .003$.

CHAPTER IV: DISCUSSION

Studies related to interventions for food refusal and selectivity in children with ASD

have suggested that EE and DR are successful as a treatment package for increasing

acceptance of food and decreasing IMB (e.g., Barnhill et al., 2016; Bui et al., 2013;

Freeman & Piazza, 1998; Murphy & Zlomke, 2016; Piazza et al., 2003). Furthermore,

researchers have been successful in training parents and teachers how to implement

behavioral techniques for feeding problems (e.g., Bui et al., 2013; Knox et al., 2012;

Murphy & Zlomke, 2016). Some of these studies assessed the social acceptability of

these methods (e.g., Bui et al., 2016; Knox et al., 2012), but there remains a lack of

research regarding perceptions of treatments for food refusal and selectivity. The purpose

of the current study was to assess the acceptability of treatments for food selectivity and

refusal in children with ASD. We examined parents' and college students' perceptions of

EE and DR in the context of food refusal and selectivity. Parents of children with ASD

and students in education and therapy fields rated the acceptability of each treatment after

learning about them by reading a written description or reading and watching the

technique implemented on video.

First, it was hypothesized that knowing less about behavioral methods would be

associated with less likelihood of using them to try to change problematic feeding

behaviors. This hypothesis was supported. The results showed that less knowledge about

a behavioral technique was significantly correlated with being less willing to use it. This

is not surprising because it is likely that people would be more reluctant to try a specific

technique if they have limited knowledge about it. Conversely, they would be more likely to use a method that they know more about.

Second, it was hypothesized that when the participants learned more about the behavioral treatments via reading a description (regardless of whether they also viewed the video), their perceptions about the efficacy and acceptability of each method would increase from their initial rating. This hypothesis was partially supported. Overall, participants had more positive perceptions of the acceptability for DR, but not for EE, after learning some information about the techniques. Giving a written description or example of DR along with specific data explaining its efficacy may have made the treatment appear more acceptable to use because the information showed the benefits of the treatment and why it is effective. This finding has implications for interventionist; it is possible that even a small amount of information, including efficacy information, might be sufficient to change a parent or care provider's view of a technique. As the Autism MEAL Plan by Sharp et al. (2014) suggests, learning about a procedure might increase the social acceptability of it, regardless of whether the procedure was practiced with a specific child. The perception of EE likely did not increase potentially due to the description including information regarding extinction bursts. It described to the participants that EE often causes an initial increase in disruptive behaviors, which may have had a negative (or neutral) effect on perceptions. Because both DR and EE are effective (and often, DR is only effective with EE), it may be worthwhile for future research to evaluate ways to make EE more acceptable to parents and pre-service teachers/therapists.

Third, the student participants who are in pre-therapy majors (i.e., occupational therapy, physical therapy, or speech language pathology) were predicted to rate the behavioral methods as more acceptable than the participants who were parents or education students, primarily due to the possibility of the therapy students being exposed to the treatments (or variations of them) as part of their professional training. This hypothesis, however, was not supported. We predicted these results based on the assumption that the therapy group would have more knowledge about the treatments, but this assumption was wrong in that they did not report more familiarity with the techniques. This may limit the validity of testing this hypothesis. If the group was extended to psychological or behavioral fields, group differences may have been evident. Previous studies have not compared perceptions of treatments, but Knox et al. (2012) assessed a teacher's perception of acceptability of a treatment package consisting of prompting, reinforcement, and demand fading for food selectivity and suggested that it was highly acceptable to use in the school setting. Additionally, Bui et al., 2016 assessed a parent's perception of an EE with reinforcement treatment package for food selectivity and found that treatment to be highly acceptable as well. However, there remains a lack of research showing comparisons of perceptions between parents, therapists, or teachers.

Fourth, participants who viewed the videos of behavioral methods being implemented were predicted to rate them more positively than the participants who only read about them. This hypothesis was not supported. It was thought that seeing the procedures in action would aid in further understanding of the effectiveness of each treatment, thus increasing the acceptability of them. However, it is possible that these results could be

due to a ceiling effect of acceptability. The acceptability of the reading alone condition

was already relatively high; thus, it is likely that the video did not aid in increasing the

perceptions of the treatments. Knox et al. (2012) similarly incorporated a demonstration

of the procedures to train the teacher how to implement them properly. The teacher rated

that treatment to be highly acceptable following the training and implementation of

procedures. Bui et al. (2013) and Murphy and Zlomke (2016) also utilized modeling

components to train parents how to implement treatments with their child. The parent

from Bui et al. (2013) rated the procedure as highly acceptable, and the parent from

Murphy and Zlomke (2016) reported that she felt more confident in feeding her child

after watching its implementation. However, Sharp et al. (2014) created a parent-training

program that was rated highly acceptable by parents but did not include any

demonstration with the children. Further research should examine whether the modeling

component of training has an effect on perception of acceptability of a treatment.

Fifth, among the participants who viewed the videos of behavioral treatments, they

were predicted to rate the DR more positively than EE. This hypothesis was supported.

Of the previously reviewed studies that utilized reinforcement, modeling, and an

assessment of acceptability of the treatment, two of the studies rated them highly

acceptable (Bui et al., 2013; Knox et al., 2012) and one study reported that the mother's

confidence in her feeding abilities increased (Murphy & Zlomke, 2016). Although two of

these studies also included EE, it is unclear which component of the treatment the

participants found more acceptable (Bui et al., 2013; Murphy & Zlomke, 2016). In the

current study it was predicted that participants would prefer DR over EE because of the

initial increase in problematic behaviors that is often caused by implementation of EE. However, these results could also be attributed to the difference in child behaviors shown in the videos. The child in the DR video was much more compliant than the child in the EE video, thus the DR procedure may have appeared more acceptable to the participants. If the videos showed children who exhibited more similar behaviors, participants may still indicate a preference for the DR method because EE is generally more challenging to implement. Of the studies that have assessed acceptability, most of them included DR in some way (e.g., Bui et al., 2013; Knox et al., 2012; Murphy & Zlomke, 2016), suggesting that the inclusion of DR may account for increased acceptability. However, these studies did not compare the acceptability of individual components of the treatment packages (i.e., DR versus EE) as was conducted in this study. Future researchers might directly compare acceptability of DR versus EE by taking these thoughts into consideration.

Finally, although no specific hypotheses were proposed, we asked the participants to compare the two treatments after rating them individually. We found that 88% of the participants preferred DR, and only 12% chose EE. This is not surprising, as we also predicted that the video only group would prefer DR. So, it makes sense that the full sample would also prefer DR. The DR procedure, whether it was written information or video, likely appeared less discomforting to the child and easier for the adult to implement. The written description of EE also described the likely occurrence of extinction bursts, and the video showed how problematic that can be. Additionally, it is possible that the two descriptions of the treatments were not equivalent. For example, it could be the case that the DR description was written more positively than the EE

description, which could have influenced the ratings. Future researchers could address this potential confound by finding individuals not related to the study to rate the two descriptions before assessing the acceptability to get a measure of their relative equality to each other. On the other hand, of the 6 who preferred EE over DR, all were in the video exposure group. This is an interesting result because the child's behaviors in that video were very disruptive. It may be that these individuals preferred EE because the procedure seemed quicker and more effective, due to the shorter length of the video compared to the DR video.

Limitations and Future Directions

This study has several limitations. First, the sample size was small, limiting the statistical power to identify significant effects and limiting the generalizability of these results to a larger population. The recruitment process was challenging, especially for parent participants. For the parent group, we were unable to contact them directly and had to rely on agencies to contact them for us. The lack of face-to-face contact with parents to recruit likely caused a lack of interest. Parents also might have had limited time or were uncomfortable meeting with someone they did not personally know. The student participants were simply asked to volunteer without any incentives, which likely lead to a lack of interest in volunteering. Also, some students who volunteered failed to schedule a time to participate or did not show up to their scheduled time. Future studies could increase the sample size by offering incentives (i.e., extra credit for students) or by recruiting in person (i.e., parent support groups). Additionally, the sample was restricted in demographics. For example, the therapy group consisted of predominantly speech and

language pathology students; only two students from pre-professional (occupational and physical therapy) majors participated. Furthermore, the education group was mostly elementary education majors and lacked students from an early education focus who may have more exposure to feeding problems and their treatments. Finally, regarding the parents, most participants were female and had at least some college education. Future studies should aim to gather acceptability data from a larger and more representative group of participants from these fields. Parents could be recruited by speaking to support groups in various areas, rather than only the Middle Tennessee area as this study did. To obtain a more equal number of males versus females for parents, both the mother and father of the family should be encouraged to participate. Regarding the therapy and education groups, it may be more useful and representative to recruit individuals who are already working in that area (i.e., occupational, physical, or therapists; early and special education teachers). They could be recruited by speaking to employees at various agencies and schools who may be working with individuals with autism and food selectivity or refusal. It may also be interesting to include individuals from the field of psychology or specifically behavior analysis. Although they may already have some knowledge about these treatments, it would be beneficial to learn how acceptable they find them compared to individuals in other fields of training.

A second limitation of this study was that the videos, due to lack of resources and time, varied in factors that may have impacted perceptions. For example, the DR video was much longer and in a more controlled environment than the EE video. Additionally, the child in the DR video did not show any problem behaviors, while the child in the EE

video exhibited relatively severe behaviors (e.g., screaming, crying, turning head/body away from spoon). It is possible that participants preferred DR because of these differences in the videos and not due to differences in the therapy techniques demonstrated. Future research should aim to create videos with more similar context, maybe using the same child, therapist, and setting and for similar time frame to control for any extraneous variables that might skew perceptions of acceptability of the treatments.

Although some studies have assessed the acceptability of treatments for food refusal and selectivity based on parent-report, there is little known research to date that assesses the perceptions of other professionals of these treatments. Children with ASD are often placed in special education classes and may be involved in several different types of therapy, such as Applied Behavior Analysis, speech therapy, occupational therapy, and physical therapy. The professionals who are involved in working with these children may need to determine an effective treatment for feeding problems displayed by a child with ASD as a team. Therefore, it would be beneficial to understand how the professionals from these various areas perceive different treatments, and how they may decide which one to implement. Further research needs to be conducted to assess what type of treatment these professionals may prefer if they encounter a child with feeding problems and why. As discussed previously, adding social acceptability to a treatment can aid in its effectiveness. Thus, if teachers, therapists, and parents find a certain treatment to be socially acceptable, they will collectively be more likely to implement it properly, which

in turn may increase the effectiveness of the treatment and promote generalization and maintenance of the child's improved behaviors.

For practitioners working with children with ASD and food refusal, these findings point us in a few directions. First, parents and other professionals may not be informed of empirically based treatment options for food refusal, so providing this information seems critical. Second, assessing the perceptions of acceptability for the treatment options is necessary as those perceptions seem directly related to how willing parents and professionals may be to use the procedures. Finally, because perceptions of EE were less positive than DR, but we know EE is a strongly empirically supported treatment, presenting EE in a positive way will be critical for practitioners to get support from parents and professionals to implement EE interventions.

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Appendices

APPENDIX A: PARENT DEMOGRAPHIC QUESTIONNAIRE

Please answer the questions below to the best of your ability.

What is your gender? _____Male _____Female _____I choose not to respond

What is your age? _____

I identify myself most as…

____ Caucasian

____ African American

____ Asian

____ Hispanic

____ Other

____ I choose not to respond.

What is the highest level of education you have obtained?

____ GED

____ High school

____ Some college

____ Associate's Degree

____ Bachelor's Degree

____ Master's Degree

____ Doctorate

____I choose not to respond

Do you have any children between the ages of 2 and 7 that have been diagnosed with autism spectrum disorder, or suspected to have autism spectrum disorder?

_____Yes _____No _____I choose not to respond

If Yes, does your child with autism experience food refusal (refusing all food) or food selectivity (only eating certain foods based on color, texture, etc.)? _____Yes _____No _____I choose not to respond

APPENDIX B: STUDENT DEMOGRAPHIC QUESTIONNAIRE

Please answer the questions below to the best of your ability.

What is your gender?   _____Male   _____Female   _____I choose not to respond

What is your age?   _____

I identify myself most as…

____ Caucasian

____ African American

____ Asian

____ Hispanic

____ Other

____ I choose not to respond.

What is the highest level of education you have obtained?

____ GED

____ High school

____ Some college

____ Associate's Degree

____ Bachelor's Degree

____ Master's Degree

____ Doctorate

____I choose not to respond

What is your current major?

____Pre-Occupational Therapy   ___Early Childhood Education

____Pre-Physical Therapy   ___Elementary Education

____Speech and Language Pathology   ___Special Education

____Other: _____

APPENDIX C: GENERAL KNOWLEDGE SURVEY

1. How much didactic training/knowledge (from classes, workshops, etc) do you have about **autism spectrum disorder (ASD)**?

1	2	3	4	5
None		Some		A Lot

2. How much applied experience (from work, internships, family members, etc) do you have with individuals with **ASD**?

1	2	3	4	5
None		Some		A Lot

3. How much didactic training/knowledge (from classes, workshops, etc) do you have about **food selectivity** (eating only specific foods, textures, colors, etc) and/or **food refusal** (e.g., not eating)?

1	2	3	4	5
None		Some		A Lot

4. How much applied experience (from work, internships, family members, etc) do you have with individuals with **food selectivity** (eating only specific foods, textures, colors, etc) and/or **food refusal** (e.g., not eating)

1	2	3	4	5
None		Some		A Lot

5. How much do you know about **medical** treatments for ASD and food selectivity and food refusal?

1	2	3	4	5
None		Some		A Lot

6. How much do you know about **nutritional** treatments for ASD and food selectivity and refusal?

1	2	3	4	5
None		Some		A Lot

7. How much do you know about **sensory** treatments for ASD and feeding difficulties?

1	2	3	4	5
None		Some		A Lot

8. How much do you know about **behavioral (escape extinction)** treatments for ASD and feeding difficulties?

1	2	3	4	5
None		Some		A Lot

9. How much do you know about **behavioral (differential reinforcement)** treatments for ASD and feeding difficulties?

1	2	3	4	5
None		Some		A Lot

10. I would be willing to use **medical** treatments if I had to change my child's/client's/student's feeding problems.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

11. I would be willing to use **nutritional** treatments if I had to change my child's/client's/student's feeding problems.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

12. I would be willing to use **sensory** treatments if I had to change my child's/client's/student's feeding problems.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

13. I would be willing to use **escape extinction** if I had to change my child's/client's/student's feeding problems.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

14. I would be willing to use **differential reinforcement** if I had to change my child's/client's/student's feeding problems.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

APPENDIX D: VIGNETTE

Johnathan is a 5-year-old boy with autism spectrum disorder. He also exhibits high levels of food selectivity and refusal. He typically only eats brand-specific types of crunchy foods, such as pretzels, Goldfish, Cheese-Its, and Veggie Straws. When given a food that he does not like, he will either refuse to put it in his mouth by closing his mouth and turning his head away or will spit it out immediately. Johnathan will only eat when he is fed by his mother. Additionally, during mealtimes he will engage in disruptive behaviors, such as physical aggression, screaming, crying, and throwing objects. His mother has tried to get him to try new foods, but he often exhibits these severe outbursts of inappropriate behaviors. He has been evaluated by his pediatrician and was found to have no food allergies or medical condition that prevents him from eating. A speech-language pathologist also assessed him for his chewing and swallowing skills and found no deficits in either area.

APPENDIX E: DESCRIPTION OF TREATMENTS

Escape Extinction

Extinction is a behavioral procedure that is commonly used to decrease problematic or challenging behaviors by no longer reinforcing a previously reinforced behavior. Escape extinction (EE) is used when an individual is engaging in certain behaviors in order to escape from an aversive stimulus (i.e. a nonpreferred task demand). This procedure requires that the interventionist continue to present an identified demand to the individual, despite what his/her behaviors are, until he/she complies with the demand. Most children who exhibit food refusal or food selectivity engage in inappropriate behaviors during mealtimes in order to escape the nonpreferred food that is presented to them. When used for the treatment of food refusal or food selectivity, escape extinction is implemented in the form of nonremoval of the spoon (NRS) or physical guidance. NRS is a procedure in which the feeder holds a spoonful of food up to the child's mouth until he/she accepts the bite. The spoon is not removed if the child engages in any inappropriate behaviors (i.e. screaming, crying, throwing items, etc.), only after the child allows the spoon into his/her mouth. Physical guidance is a procedure in which the feeder uses hand-over-hand guidance to help the child grab the spoon, pick it up, and put it in his/her mouth. The feeder does not let go of the child's hand until a bite has been accepted. EE often causes extinction bursts, in which the child's disruptive behaviors temporarily increase before they decrease. *EE has the most research in support of its effectiveness for the treatment of food refusal or selectivity in children with autism spectrum disorder. Several studies found that EE was effective in increasing consumption of food. One study increased a child's consumption from zero to 150 grams per meal, and another study increased the child's consumption from 18 to 70 bites per meal.*

Differential Reinforcement

Reinforcement is anything that will increase the likelihood that a specific behavior will occur again. Differential reinforcement (DR) is the process of giving reinforcement for a specific behavior under certain conditions and withholding reinforcement during other conditions. Treatment for food refusal or selectivity often utilizes differential reinforcement of an alternative behavior (DRA). DRA is when one reinforces an individual's alternative behavior and ignores the inappropriate behavior. Regarding feeding therapy, the alternative behavior is typically when the child takes a bite of food and the inappropriate behavior is defined based on how the child typically acts during meals (i.e. screaming, crying, throwing items, etc.). For example, a mother might say, "Yay! Good job eating!" when the child takes a bite, but ignore when the child screams, cries, or throws anything. The type of reinforcement is based on what the child prefers the most. Some reinforcers may include verbal praise/attention from an adult or access to a preferred toy. During feeding sessions, the child only receives these predetermined reinforcers when he/she takes a bite of food. *While there are mixed results on the effectiveness of using DR alone in the treatment of food refusal and selectivity, some studies have found that it is effective in decreasing inappropriate mealtime behaviors. One study increased a child's compliance per meals from zero to 80%. DR may also be a valuable component in a treatment package to increase food consumption. In one study, DR was successful in increasing the variety of food that two children with autism spectrum disorder ate from zero to four types of foods per meal. Another study increased an adolescent's food consumption from 20% of foods per meal up to 100% of foods per meal.*

APPENDIX F: VIDEOS

Video 1- Escape Extinction (0-0:33)

https://www.youtube.com/watch?v=zJ3nmYGl4rM

Video 2- Differential Reinforcement of Alternative Behavior (1:40:15-1:42:20)

https://www.youtube.com/watch?v=42Uk3SCQ1Ac&t=6150s

APPENDIX G: TREATMENT EVALUATION INVENTORY- SHORT FORM FOR

ESCAPE EXTINCTION

1. I find this treatment to be an acceptable way of dealing with the child's problem
    behavior.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

2. I would be willing to use this procedure if I had to change the child's problem
    behavior.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

3. I believe that it would be acceptable to use this treatment without children's consent.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

4. I like the procedures used in this treatment.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

5. I believe this treatment is likely to be effective.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

6. I believe the child will experience discomfort during the treatment.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

7. I believe this treatment is likely to result in permanent improvement.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

8. I believe it would be acceptable to use this treatment with individuals who cannot choose treatments for themselves.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

9. Overall, I have a positive reaction to this treatment.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

APPENDIX H: TREATMENT EVALUATION INVENTORY- SHORT FORM FOR

DIFFERENTIAL REINFORCEMENT

1. I find this treatment to be an acceptable way of dealing with the child's problem behavior.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

2. I would be willing to use this procedure if I had to change the child's problem behavior.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

3. I believe that it would be acceptable to use this treatment without children's consent.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

4. I like the procedures used in this treatment.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

5. I believe this treatment is likely to be effective.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

6. I believe the child will experience discomfort during the treatment.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

7. I believe this treatment is likely to result in permanent improvement.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

8. I believe it would be acceptable to use this treatment with individuals who cannot choose treatments for themselves.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

9. Overall, I have a positive reaction to this treatment.

1	2	3	4	5
Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree

APPENDIX I: COMPARISON SURVEY QUESTION

After learning about both escape extinction and differential reinforcement, which

treatment would you be more willing to use, when compared to the other, for the

treatment of food refusal and selectivity in autism?

Please only choose one treatment

___Escape Extinction

___Differential Reinforcement

APPENDIX J: LETTER OF INFORMED CONSENT

IRB

INSTITUTIONAL REVIEW BOARD
Office of Research Compliance,
010A Sam Ingram Building,
2269 Middle Tennessee Blvd
Murfreesboro, TN 37129

MIDDLE TENNESSEE STATE UNIVERSITY

IRBF004IC: INFORMED CONSENT – RESEARCHERS' DISCLOSURES
(Part A – Participant's Copy)

Study Title	*Acceptability of Treatments for Food Refusal and Selectivity in Children with Autism*	Office Use
Principal Investigator	**Mary Hawkins**	*IRB ID: 19-1101*
Faculty Advisor	Kimberly Ujcich Ward	Approval Date: 11/20/2018
Contact Information	meh6g@mtmail.mtsu.edu; kimberly.ward@mtsu.edu	
		Expiration Date: N/A

Dear Participant,

On behalf of the research team, the Middle Tennessee State University (MTSU) would like to thank you for considering to take part in this research study. You have been contacted by the above identified researcher(s) to enroll as a participant in this study because you met its eligibility criteria.

This consent document describes the research study for the purpose of helping you to make an informed decision on whether to participate in this study or not. It provides important information related to this study, possible interventions by the researcher(s) and proposed activities by you. This research has been reviewed by MTSU's internal oversight entity - Institutional Review Board (IRB) - for ethical practices in research (visit www.mtsu.edu/irb for more information).

As a participant, you have the following rights:
- You should read and understand the information in this document before agreeing to enroll
- Your participation is absolutely voluntary and the researchers cannot force you to participate
- If you refuse to participate or to withdraw midway during this study, no penalty or loss of benefits will happen
- The investigator MUST NOT collect identifiable information from you, such as, name, SSN, and phone number
- The researcher(s) can only ask you to complete an interview or a survey or similar activities and you must not be asked to perform physical activities or offer

medical/psychological intervention

- Any potential risk or discomforts from this study would be lower than what you would face in your daily life

After you read the following disclosures, you can agree to participate in this study by completing "Part B" of this informed consent document. You do not have to do anything further if you decide not to participate.

1. What is the purpose of this study?

The purpose of this study is to investigate willingness to use behavioral treatments for food refusal and selectivity in children with autism. We are specifically interested in the perspectives of parents and of professionals in training in disciplines that might involve working with children with food refusal and selectivity.

2. What will I be asked to do in this study?

You will be asked to answer questions about your knowledge of and experience with food refusal and selectivity and its treatment. You also will be asked to read a description of two behavioral treatments and possibly to watch brief videos of some interventions for food refusal and selectivity and to answer questions about your perceptions.

3. How many times should I participate or for how long?

Participation in this study is one time, and will take approximately 15-20 minutes of your time.

4. What are the risks and benefits if I participate?

There are no foreseen risks to participating in this study. A potential benefit might be that you could learn about various behavioral treatments for individuals exhibiting food refusal or selectivity.

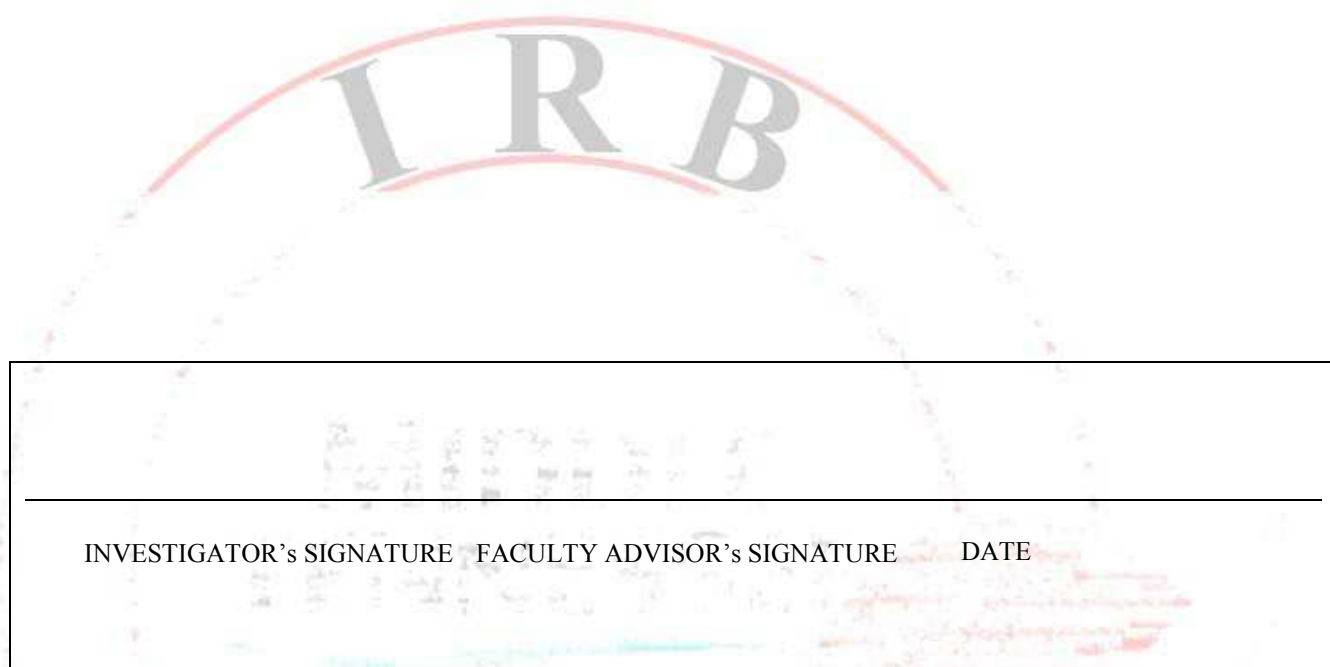**5. What will happen to the information I provide in this study?**

The information you provide will be combined with information from other participants to allow group data analysis. Your individual responses will be anonymous. The group data will be used to help us learn more about perceptions of treatments for food refusal.

6. What will happen if I refuse to participate and can I withdraw if I change my mind in the middle?

You may choose to withdraw from the study at any time or refuse to participate without any consequences.

7. Whom can I contact to report issues and share my concerns?
You can contact the researcher(s) by email or telephone (**meh6g@mtmail.mtsu.edu; kimberly.ward@mtsu.edu; 615-898-2188**). You can also contact the MTSU's Office of Research Compliance by email – irb_information@mtsu.edu. Report compliance breaches and adverse events by dialing 615 898 2400 or by emailing compliance@mtsu.edu.

INVESTIGATOR's SIGNATURE   FACULTY ADVISOR's SIGNATURE   DATE

NON-IDENTIFIABLE PARTICIPANT ID#

Confidentiality Statement:

All efforts, within reason, will be made to keep the personal information in your research record private but total privacy cannot be promised, for example, your information may be shared with the MTSU IRB. In the event of questions or difficulties of any kind during or following participation, you may contact the Principal Investigator as indicated above. For additional information about giving consent or your rights as a participant in this study, please feel free to contact our Office of Compliance at (615) 898 2400.

Compensation:

Unless otherwise informed to you by the researcher(s), there is no compensation for participating in this study. The investigator must disclose if the participant would be compensated in the benefits section.

Study-related Injuries:

MTSU will not compensate for study-related injuries.

Exemption Criteria:

This study was submitted to the MTSU IRB – an internal oversight entity to oversee research involving human subjects. The IRB has determined that this investigation consists of lower than minimal risk and it is exempt from   further IRB processes based on the criteria: *"Category 1 - Educational Settings & Instructional Strategies."*

Note to the Participant

You do not have to do anything if you decide not to participant in this study. But if wish to enroll as a participant, please complete "Part B" of this informed consent form and return it to the researcher. Please retain the signed copy of "Part A" for your future reference.

IRB

INSTITUTIONAL REVIEW BOARD

Office of Research Compliance,

010A Sam Ingram Building,

2269 Middle Tennessee Blvd, Murfreesboro, TN 37129

INFORMED CONSENT

(Part B – Researcher's Copy)

		Approval Information
Study Title: *Acceptability of Treatments for Food Refusal and Selectivity in Children with Autism*		
Principal Investigator	**Mary Hawkins**	IRB ID: *19-1101*
Faculty Advisor	Kimberly Ujcich Ward	Approval Date: 11/20/2018
Contact Information	meh6g@mtmail.mtsu.edu; kimberly.ward@mtsu.edu	Expiration Date: N/A

You have been contacted by the investigator(s) because the researchers believe you meet the eligibility criteria to participate in the above referenced research study. Be aware that you must NOT be asked by the investigator(s) to do anything that would pose risk to your health or welfare, such as:

- Identifiable information – name, phone number, SSN, address, College ID, social media credentials (FaceBook page, twitter, etc.), email, identifiable information of closest relatives and etc.
- Physical activities – like exercise studies
- Medical intervention – testing drugs, collection of blood/tissue samples or psychological questions
- Nothing risky – any proposed activity that would expose you to more risk than what you would face on a day to day basis is not approved by the IRB

However, you can do the following:

- Withdraw from the study at any time without consequences
- Withdraw the information you have provided to the investigators before the study is complete
- Ask questions so the researcher must explain the procedures used in the research verbally.

The investigators must give you enough time to ask any questions. Once you have had a chance to read "Part A" (Participant's Copy), indicate your acceptance by checking the appropriate boxes:

- ➢ I have read investigator(s)' disclosure (Part A) for the above identified research   **NO YES**
- ➢ The researcher(s) explained the procedures to be conducted verbally
- ➢ I understand each part of the interventions and all my questions are answered
- ➢ The researcher(s) gave me a signed copy of the disclosure page (Part A)

By initialing below, I give my consent to participate in this study.   I understand that I can withdraw from the study at any time without facing any consequences.

X

----------------------   ---------------------------- **NON-IDENTIFIABLE PARTICIPANT ID#**

Participant initial   **Date**

Initial this copy and return it to the researcher and retain Part A for your reference in case you have questions, or you wish to get in touch with the researcher or with the MTSU IRB

APPENDIX K: INSTITUTIONAL REVIEW BOARD LETTER OF APPROVAL

IRB

INSTITUTIONAL REVIEW BOARD
Office of Research
Compliance, 010A
Sam Ingram Building,
2269 Middle
Tennessee Blvd
Murfreesboro, TN
37129

IRBN007 – EXEMPTION DETERMINATION NOTICE

Tuesday, November 20, 2018

Principal Investigator	**Mary Hawkins** (Student)
Faculty Advisor	Kimberly Ujcich Ward
Co-Investigators Investigator Email(s)	NONE *meh6g@mtmail.mtsu.edu; kimberly.ward@mtsu.edu*
Department	Psychology
Protocol Title	***Acceptability of treatments for food refusal and slectivity in children with autism***
Protocol ID	**19-1101**

Dear Investigator(s),
The above identified research proposal has been reviewed by the MTSU Institutional Review Board (IRB) through the **EXEMPT** review mechanism under 45 CFR 46.101(b)(2) within the research category *(2) Educational Tests* A summary of the IRB action and other particulars in regard to this protocol application is tabulated as shown below:

IRB Action	**EXEMPT from furhter IRB review***	Date	**11/20/18**
Date of Expiration	NOT APPLICABLE		
Sample Size	100 (ONE HUNDRED)		
Participant Pool	**Healthy Adults (18 or older) - MTSU students whose child/children is suspected or diagnosed with autism**		
Exceptions	NONE		
Mandatory Restrictions	1. Participants must be 18 years or older 2. Informed consent must be obtained from the participants 3. Identifying information must not be collected		

Restrictions	**All restrictions for exemption apply**
Comments	NONE

***This exemption determination only allows above defined protocol from further IRB review such as continuing review. However, the following post-approval requirements still apply:

- Addition/removal of subject population should not be implemented without IRB approval
- Change in investigators must be notified and approved
- Modifications to procedures must be clearly articulated in an addendum request and the proposed   changes must not be incorporated without an approval
- Be advised that the proposed change must comply within the requirements for exemption
- Changes to the research location must be approved – appropriate permission letter(s) from external   institutions must accompany the addendum request form
- Changes to funding source must be notified via email (irb_submissions@mtsu.edu)
- The exemption does not expire as long as the protocol is in good standing
- Project completion must be reported via email (irb_submissions@mtsu.edu)
- Research-related injuries to the participants and other events must be reported within 48 hours of such events to compliance@mtsu.edu

Post-approval Protocol Amendments:

The current MTSU IRB policies allow the investigators to make the following types of changes to this protocol without the need to report to the Office of Compliance, as long as the proposed changes do not result in the cancellation of the protocols eligibility for exemption:

- Editorial and minor administrative revisions to the consent form or other study documents
- Increasing/decreasing the participant size

Only THREE procedural amendment requests will be entertained per year.   This amendment restriction does not apply to minor changes such as language usage and addition/removal of research personnel.

Date	Amendment(s)	IRB Comments
NONE	NONE.	NONE

The investigator(s) indicated in this notification should read and abide by all applicable post-approval conditions imposed with this approval. Refer to the post-approval guidelines posted in the MTSU IRB's website. Any unanticipated harms to participants or adverse events must be reported to the Office of Compliance at (615) 494-8918 within 48 hours of the incident.
All of the research-related records, which include signed consent forms, current & past investigator information, training certificates, survey instruments and other documents related to the study, must be retained by the PI or the faculty advisor (if the PI is a student) at the sacure location mentioned in the protocol application. The data storage must be maintained for at least three (3) years after study completion.   Subsequently, the researcher may destroy the data in a manner that maintains confidentiality and anonymity. IRB reserves the right to modify, change or cancel the terms of this letter without prior notice. Be advised that IRB also reserves the right to inspect or audit your records if needed.

Sincerely,

Institutional Review Board
Middle Tennessee State University

Quick Links:

Click here for a detailed list of the post-approval
responsibilities. More information on exempt
procedures can be found here.

IRBN007 – Exemption Determination
Notice

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