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Evaluating virtual training methods to train caregivers of individuals with CHARGE syndrome to conduct brief functional analyses conditions

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Evaluating virtual training methods to train caregivers of individuals with CHARGE syndrome

to conduct brief functional analyses conditions

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Literature assessing behavior among individuals with disabilities largely focuses on individuals with high incidence disabilities leaving a gap for those with rare, or low incidence, genetic syndromes. Specifically, individuals with CHARGE syndrome who exhibit a unique behavioral phenotype, as a result of numerous medical complexities, are absent in literature functionally assessing behavior. Because of this unique behavioral phenotype, caregivers of individuals with CHARGE Syndrome are likely to be most familiar and knowledgeable about their child's behavior and should therefore be trained to be included in the functional assessment of behavior. Because CHARGE Syndrome is rare, families may have limited access to resources to adequately assess their child's problem behavior, as well due to medical complexities, individuals with CHARGE may not be able to attend in-person assessment and ultimately treatment as a result of potential exposure to the novel COVID-19 virus. As a result, virtual training methods will allow more families to learn how to identify the cause of their child's behavior and how to be involved in virtual behavioral assessments. This study evaluates virtual training methods focusing on training caregivers of individuals with CHARGE Syndrome to conduct brief functional analysis conditions.

DEDICATION

The CHARGE Syndrome community has fostered and supported many young professionals with a passion for learning about and advocating for individuals with CHARGE Syndrome. In return, this dissertation is dedicated not only to the CHARGE Syndrome Foundation, but also to the CHARGE Syndrome community as a whole.

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CHAPTER I

INTRODUCTION

Impacts of Problem Behavior

Problem behaviors such as aggression, elopement, non-compliance and tantrums can lead

to negative effects such as decreased socialization among peers even among the general

population (Card et al., 2008). Considering individuals with developmental disabilities such as

Autism Spectrum Disorder (Mayes et al., 2012) and Intellectual Disabilities (Baker et al., 2002)

experience problem behavior at a higher rate compared to the general population, it can be

inferred individuals with disabilities also experience the negative effects at a higher rate.

Specifically, Baker et al. (2003) found children with developmental delays were three times as

likely as typically developing children to exhibit problem behaviors. Beyond peer socialization,

problem behavior can lead to reduced academic engagement (McComas et al., 2000) and

increased parent/family stress (Davis & Carter, 2008). Compared to individuals with other

developmental disabilities, individuals who are deafblind were found to have more severe

behavior (Hartshorne et al., 2005).

A child exhibiting problem behaviors can be challenging for any parent and particularly

challenging for parents of children with unique special needs or disabilities. It is not surprising

then that behaviors reach a point or intensity in which parents must seek support to intervene on

their child's difficult behaviors. When professionals are developing interventions to address such

problem behavior, it is crucial that interventions address the function or the "why" of a behavior

in order to develop an effective treatment plan. Over the years, many researchers have developed effective means to identify the function of challenging or problem behaviors, primarily through an assessment called a functional analysis (FA). A functional analysis is an assessment that uses scientific, methodological methods to identify the function of problem behavior (Arndorfer & Miltenberger,1993; Beavers et al., 2013; Iwata et al., 1982;). Literature examining behavior assessment methods and outcomes, continue to advocate that professionals take a precise, scientific, functionally based approach when addressing behavioral concerns no matter the diagnosis (Beavers et al., 2013).

Ultimately, a functional analysis seeks to determine which of three primary functions of behaviors are maintaining the challenging behavior presented. The three most common functions are to gain social attention, to gain access to a tangible item, and to seek escape from a demand (Cooper et al., 2014; Iwata et al., 1982). Determining the function of the behavior serves many purposes, but most importantly the goal is to use the information to develop an effective and efficient intervention to reduce problem behavior and gain new skills. Behavioral interventions developed without first identifying a function have been found to have a 50% increased chance of being punishment based, whereas interventions that begin with identifying the function are more likely to be based on reinforcement procedures (Pelios et al., 1999). This is important because the field of behavioral psychology and behavior analysis seeks to remedy challenging behavior first through positive behavior change using principles of reinforcement.

According to Cooper, Heron and Heward (2014), positive reinforcement is the root of the field of ABA and is the most widely applied strategy and should, therefore, be the basis of behavioral interventions. Further, McComas and Mace (2000) argued that without successfully identifying the correct function, intervention is often ineffective and can lead to ineffective,

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sometimes dangerous, outcomes further prolonging behavioral concerns and reducing implementer (often, parents) buy-in. In situations of concerning problem behavior, such as self-injury or aggression, identifying the function is critical to reduce problem behavior for several reasons. First, such behaviors may cause harm to the student or others. In some cases, such challenging behaviors like self-injury or pica, can pose a significant health concern that could result in serious medical harm and potentially death in some cases (Mace & Knight, 1986). Although not as physically harmful and alarming, problem behavior in the place of communication is developmentally and socially important to address in order to replace this challenging behavior with more appropriate and functional speech that can not only improve quality of life, but increase access to social situations, educational programs, etc.

Secondly, beyond important medical factors, identifying the function of behavior is important for social and academic reasons (McComas et al., 2000). Problem behavior in an academic setting can lead to reduced academic engagement either because the behavior is maintained by escape or because the behavior results in removal from the classroom (McComas et al., 2000). For example, students in schools who display problem behaviors that may cause harm to others are often removed from the academic environment resulting in decreased academic exposure and reduced social engagement (Carr et al., 1980). Therefore, creating a functionally based intervention that will reduce or eliminate problem behavior is essential to increase not only social involvement, but also academic exposure (McComas & Mace, 2000)

Assessing Problem Behavior

There are other approaches to assessing behavior using informal measures such as parent interviews, teacher interviews and rating scales (Miltenberger, 1990). However, Hanley et al., (2005) noted these methods are inappropriate for certain individuals when you consider age,

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cognitive abilities, and communication abilities. Therefore, a more formal, scientific approach is needed---a functional analysis. In broad terms, a functional analysis is scientifically manipulating aspects of one's environment and precisely measuring the response in one's behavior according to manipulations in order to determine what manipulations serve as the function of behavior (Cooper et al. 2014).

Functional analyses can be used to identify functions of multiple behaviors such as elopement (Carr et al., 1980; Mace & West, 1986; McComas et al., 2000), self-injury (Iwata et al. 1982/1994; O'Reilly, 1996; Pelios et al., 1999), pica (Mace & Knight, 1986; Piazza et al., 1998), aggressive behavior (Fisher et al., 1998; Northup et al., 1991; Pelios et al., 1999; Ringdahl et al., 2009) and reluctant speech (Bowman et al., 1997; Derby et al., 1997). Further, FAs have been used to identify the function of behavior among numerous diagnoses such as autism spectrum disorder, intellectual disabilities, attention deficit hyperactivity disorder, traumatic brain injuries, Down Syndrome, genetic syndromes, and individuals with multiple sensory deficits (Kurtz et al., 2013).

While functional analyses have overall been successful at identifying the function of behavior, there are situations in which the functional analysis produces ambiguous results which do not allow to produce an effective intervention (Ringdahl & Sellers, 2000; Ripple, 2019). One theory behind why some functional analyses produce ambiguous results include the absence of a reinforcer that exists only in their natural environment, such as a caregiver (Lang et al., 2008).

History of Including Caregivers in Behavior Assessments

Research regarding caregiver led assessments have recognized that including the caregiver provides clear results that are more generalizable since they include aspects of the natural environment in which problem behavior occurs (Cooper et al., 1990; Cooper et al., 2014).

Currently, functional analyses conducted by parents only occur in populations such as Autism Spectrum Disorder, Intellectual Disability, Seizure Disorder, Attention Deficit Hyperactivity Disorder and Traumatic Brain Injury (Kurtz et al., 2013). The fact that Kurtz's et al. (2013) study systematically reviewed previous articles in which caregivers implemented functional analyses, included only 52 studies and only five of those participants had been diagnosed with genetic and medically complex syndromes suggests there is limited research in which caregivers of individuals with genetic and medically complex syndromes use functional analyses methods to identify the function of problem behavior or are included in the analysis. More specific to CHARGE Syndrome, only one case in Kurtz et al. (2013) study was diagnosed with CHARGE Syndrome indicating an even more narrow gap regarding including caregivers of individuals with CHARGE Syndrome in behavioral assessment.

CHARGE Syndrome

Similarly, as highlighted above, functional analyses have been successful across a number of different client populations; however, one condition that has received little attention in behavior literature is CHARGE Syndrome. CHARGE syndrome is a rare genetic condition that affects every 1 in 10,000 live births that comprises a host of medical complexities, such as deaf-blindness, heart defects, and feeding difficulties (Blake & Prasad, 2006). As a result of this condition and underlying vision and hearing difficulties, individuals with CHARGE often present with challenging behaviors and difficulty with communication that may require behavioral intervention (Hartshorne et al., 2011).

Presently, Ripple (2019) demonstrated the effectiveness of brief FAs to identify the function of problem behavior among individuals with CHARGE Syndrome. Currently, this is the only existing functional analysis study focusing solely on individuals with CHARGE Syndrome.

While Ripple's study was effective overall in identifying function, one participant had multiple functions identified, which the author noted could be due to the caregiver not being present during the FA, such that the problematic behavior only occurred under the condition of the caregiver or was elicited most frequently in their presence. This further highlights the importance of training caregivers to conduct brief FAs to more clearly identify the function of behavior, as was described in Kurtz et al. (2013).

Purpose of this Study

The current study aims to close two gaps within the literature. First, this study will include parents/caregivers of individuals with CHARGE, a medically complex, genetic syndrome, that has received little investigation with regard to behavioral assessment, specifically functional analysis. The second gap this study will explore is to examine the effectiveness of virtual methods to train parents of individuals with CHARGE to conduct a brief functional assessment. Using condition methods from a brief functional analysis and training methods outlined by Moore et al. (2002), participants will be virtually trained to conduct specific conditions in a brief FA. Post training evaluations will be used to evaluate effectiveness of training methods.

This study looks to answer the following research question:

(a) Are the virtual training methods effective in training parents/caregivers of individuals with CHARGE to lead brief FA conditions?

CHAPTER II

LITERATURE REVIEW

Problem Behavior

Problem behavior is exhibited by children with and without disabilities and the negative impacts of problem behavior are also experienced by children with and without disabilities and their families. In general, any child exhibiting problem behaviors may experience negative impacts such as social isolation, peer rejection and/or negatively impacted academic performance. Specifically for children with developmental disabilities, who have been found to be three (3) times more likely to exhibit problem behavior than their typically developing peers, problem behavior that is unaddressed and seen as unmanageable can predict and lead to more restrictive living placements, reduced employment opportunities and reduced academic learning opportunities (Baker et al., 2002). More specifically when compared to other developmental disabilities, diagnosis such as Autism Spectrum Disorder (Card et al., 2008) and deaf-blindness, commonly experienced by individuals with CHARGE Syndrome, (Hartshorne et al., 2005) exhibit problem behavior at a higher rate. As well as experiencing personal negative impacts at a higher rate, it has also been found those responsible for the care of individuals with developmental disabilities exhibiting problem behavior experience increased parent/family stress (Davis & Carter, 2008).

Thus, taking into consideration the higher rates of problem behavior and the negative impacts for special populations (e.g. deaf-blindness, CHARGE Syndrome), it is clear researchers

should focus on assessing problem behavior among these populations. The hallmark approach within Applied Behavior Analysis (ABA) to treat problem behavior is to first appropriately identify the function of the behavior through behavioral assessment. However, for individuals with CHARGE this has not occurred in the behavioral literature. Further, there has been a push to include caregivers and parents in FA research, yet this has also not been conducted with this unique population of CHARGE Syndrome. Within this review, methods of identifying problem behavior will be reviewed, including training of individuals to conduct assessment procedures. CHARGE syndrome and its many characteristics will also be discussed.

Applied Behavior Analysis and Functional Analyses

ABA is a scientific approach to understanding behavior rooted in learning and behavioral theory that has a set of principles derived on how to address real-world behavior concerns (Cooper et al., 2014). It focuses on behavioral assessment and intervention and has been noted to have diverse application, purpose, and generalizability (Cooper et al., 2014). ABA has been called to be applied to various settings as well as various fields of psychology even in the beginning years of its foundation (Bijou, 1970; Morris, 2008). Founded in the 1970s, ABA is defined as "the science in which tactics derived from the principles of behavior are applied to improve socially significant behavior and experimentation is used to identify the variables responsible for the improvement in behavior" (Bijou, 1970; Cooper et al., 2014, p. 2). In simpler terms, ABA helps discover environmental variables that influence behavior and uses these discoveries as a way to develop an approach to increasing socially appropriate behaviors through reinforcement procedures (Cooper et al., 2014)

A fundamental technique of assessment rooted in ABA theory is FA. Researchers in the field of ABA (Cooper et al., 2014, p. 8; Iwata et al. 1982/1994) have defined FA as "an

assessment of the functions of problem behavior, in which antecedents and consequences representing those in the person's natural routines are arranged within an experimental design so their separate effects on problem behavior can be observed and measured". Arndorfer and Miltenberger (1993) regarded the functional analysis as the most frequent method to assess and treat problem behavior in research practice. There is an immense amount of literature supporting the use of functional analyses methodology to assess problem behavior (Azrin, 1977; Baer et al.,1968, 1987; Bijou, 1957; Iwata, 1991; Iwata et al., 1982/1994; Iwata & Dozier, 1998; Iwata & Dozier, 2008; McKinney, 1962). The results of functional analyses have been demonstrated to create effective interventions centered around the function of problem behavior (Iwata et al, 1990). Even in cases in which an individual has years of a learning history of engaging in problem behavior, FA allow clinicians to create a function-based intervention that can result in zero rates of problem behavior (Ringdahl et al., 2009). Because behavior is often unique to the individual, their environment and their learning history, a systematic and methodical approach that considers each of these factors rather than only their diagnosis is needed (McKinney, 1962).

FA methods have been strongly regarded as effective and become so potent over the years, psychologists in other branches of psychology have begun to adopt these methods to assess behavior in a variety of populations and diagnoses (Beavers et al., 2013). Additionally, functionally based interventions have been shown to create prompt results (Northrup et al., 1991) in decreasing problem behavior-- an important feature in obtaining "buy in" from caregivers. Not only can using functional analyses create an effective intervention, they can also provide a clear picture of behavior and make it understandable for individuals without an ABA education (e.g. parents and teachers). Together this avoids haphazard implementation of interventions that

are not considering the reason for problem behavior, which could ultimately lead to an increase

in intensity and frequency of problem behavior (O'Reilly, 1996).

Methodology of Functional Analyses

In 1957, Bijou's assessment procedures began the spirit of a "functional analysis", which

included first an operational definition of the target behavior, experimental trials contrived to

manipulate environmental variables (e.g. access to items, access to social attention etc.), and

taking frequency data on the target behavior during each trial. It was the goal to make these trials

multi- dimensional in which each dimension would represent a unique aspect of behavior

(McKinney, 1962). Typically these trials are conducted in the same session or same day,

although they could occur over a period of time if the circumstances deem this necessary (Hart et

al., 1964; Iwata et al. 1982/1994). After trials were completed and it was clear which trial served

as the function for behavior, it was typical to perform reversal trials in which the opposite

procedures of the identified trial are implemented to further confirm results (e.g. if behavior

occurs most frequently when social attention is removed, a reversal trial would give constant

attention and no problem behaviors would be expected) (Hart et al., 1964).

Eventually, specific procedures were developed by Iwata et al. in 1982/1994. Iwata et al.

(1982/1994) defined 4 different conditions for FA procedures which have become known as

traditional FA methods. The conditions are as follows: (a) Social Disapproval in which social

attention is given in occurrence of problem behavior to determine if the behavior is maintained

by social attention, (b) Academic Demand in which a demand was presented and the clinician

used graduated prompts to complete demand if no problem behavior occurred and escape from

demand if the problem behavior did occur upon presentation of demand to determine if the

behavior is maintained by escape, (c) Unstructured Play which serves as a control condition in

which problem behavior is ignored and (d) Alone in which it is determined if the behavior is automatically reinforced (Iwata et al. 1982/1994). In Iwata et al.'s (1982/1994) description of the procedures, a client would go through each condition twice, with each session lasting 15 minutes and the order of trials randomized.

Although methods by Iwata et al. (1982/1994) have been demonstrated to accurately identify functions of behavior, (Iwata et al. 1982/1994; Mace et al., 1986), some literature has identified limitations in using these procedures. If a clinician uses the procedures outlined by Iwata et al. (1982/1994), it could take up to two hours or many repeated conditions (sometimes over days or weeks) to complete the functional analysis. Some literature (Tincani et al., 1999; Wallace & Iwata, 1999) has focused on the time it takes to complete the FA as a limitation. Wallace and Iwata (1999) reviewed data using Iwata et al., (1982/1994) procedures, from the beginning five, ten, and entire fifteen-minute conditions. It was found that reducing condition times to ten minutes yielded the same FA results.

Due to limitations and in efforts to best accommodate all individual situations, different types of FA procedures were developed. Brief FAs have been noted to take less than an hour to conduct as opposed to the procedures of traditional FAs which leads to these procedures being more feasible and efficient (Tincani et al., 1999). When the two types of FAs are compared, the same effectiveness is evident, however, the brief FA procedures yield far less completion time (Tincani at al., 1999). Reducing assessment time can allow for more efficient use of clinical time to treat the challenging behavior presented (Wallace & Iwata, 1999).

A brief FA involves clients being exposed to the same four conditions outlined by Iwata et al. (1982/1994) only one time each with each condition lasting only 10 minutes (Harding et al., 1994; Tincani et al., 1999). Brief FA procedures have been validated in identifying functions

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of behavior in various presentations of problem behavior and disability (Cihak et al., 2007; Ripple, 2019; Tincani et al., 1999). Modified FA methods have also been noted to be easier to implement in natural settings such as schools, in the home, and in the community (Cihak et al., 2007). Further, brief FA are also more practical in situations of time constraints such as accommodating to a school schedule or in a home visit in which treatment is limited to a number of visits (Gardner et al., 2012). In previous literature, brief FA methodology has also been noted to be successful in various diagnosis as well as with individuals considered typically developing (Gardner et al., 2012; Ripple, 2019; Wacker et al., 1998).

In some circumstances, the problem behavior being measured (e.g. self-injury or aggression towards others) may be a behavior that would be harmful if the individual were to engage in the behavior repeatedly during an FA (Najdowski et al., 2008). It would be unethical to continue with traditional FA methods in these circumstances and put the individual or clinicians at risk of injury, therefore modified FA procedures should be developed and implemented (Najdowski et al., 2008). One modification for these situations is FA methods that measure latency to problem behavior (i.e. measuring the time between presentation of antecedent and attempt to engage in problem behavior) rather than frequency of behavior and the problem behavior is blocked (Call et al., 2009; Najdowski et al., 2008). Latency based FAs can also be used in situations where escape is hypothesized to be the function of behavior and getting an individual to complete the task before allowing escape as outlined by Iwata et al. 1982/1994 would not be feasible or effective in measuring true function (Call et al., 2009; Neidert et al., 2013). Another modification to latency-based FAs would be that if the behavior poses enough risk, clinicians would not run an alone condition (Call et al., 2009; Neidert et al., 2013).

Another modification to traditional FA methodology, known as trial-based FAs, were created to accommodate FAs being conducted during an individual's natural routine and across a time period (Rispoli et al., 2013; Sigafoos & Saggers, 1995). Because the methods of trial-based FAs mimic those traditional FA methods, they have been demonstrated to be effective in identifying the function of various topographies of problem behavior in various populations and settings (Rispoli et al., 2013). Trial-based FA methods are considered more discrete as they are typically conducted in the natural environment, with very brief opportunities of assessment, as to not disrupt the nature routine (Rispoli et al., 2013). Trial based FAs have also been noted to be more feasible to implement because conditions are specifically chosen to prompt certain hypothesized antecedent or consequences, which means all four conditions may not necessarily be included (Beavers et al., 2013; Rispoli et al., 2013).

Given the various types of FAs and the pros and cons for their selected use, individuals must consider the client/family and clinician's availability of time to obtain results from FAs and to provide function-based intervention to improve target behaviors (Beavers et al., 2013). One important argument for a movement towards shorter session times than those presented by Iwata and colleagues (1982/1994) is that having an individual repeatedly exhibit problem behavior over longer trials may increase possibility of harm for the individual thus creating unnecessary risk and also greater delay of treatment than what may be necessary (Beavers et al., 2013). Beyond duration of trials or type of functional analysis, research also suggests that who is present during the FA can make a difference in outcomes—and ultimately impact treatment.

Importance of Caregiver Inclusion

The earliest literature including familiar individuals in the assessment of behavior was Ayllon and Michael's (1959) study. This investigation included nurses at a mental health

hospital. The nurses were included based on the observation that new behaviors had developed in the presence of nurses who had become integrated into the patient's daily life. Research since Ayllon and Michael's (1959) study has demonstrated that caregiver led behavior assessments to evaluate problem behavior in children have not only provided clearer results, but they have also yielded interventions that produce effective results that generalize to other settings (e.g. home, school or community) as much as six months after assessment (Cooper et al., 1990; Cooper et al., 2014).

Certain problem behaviors such as aggression, disruption, and self-injury are likely to elicit social attention (e.g., "Stop! You'll hurt yourself." while moving the child's hand down from their head) from parents or caregivers as the presenting challenging behaviors may seem intense and needing an immediate response. This response (and accidentally on behalf of caregivers) socially reinforces these behaviors (Iwata & Dozier, 1998; Vollmer et al., 1993). Because caregivers are the primary individuals in the child's environment to see such challenging behaviors across time and settings, parents are likely contributing to the maintenance of such behavior.

Antecedents to problem behavior are often controlled by the caregivers or someone familiar with the child, therefore, researchers have begun to see the importance of inclusion of caregivers in the assessment of behavior (Harding et al., 1994). Further, Cooper et al. (1994) reported that caregivers who conducted behavior assessments were more likely to continue to implement functionally-based interventions at home and indicated satisfaction in behavior changes among their children. Given this, it is especially important that caregivers be involved in assessment.

Further, simple differences in the type of attention such as voice tone, facial expression, and posture have been noted to evoke different levels of problem behavior (Fisher et al., 1996). Perhaps, caregivers can often be the individual who is able to present these subtle differences that evoke levels of behavior high enough to yield clear results in behavior assessments such as functional analyses. In Richman and Hagopian's (1999) study, caregivers of a participant explicitly stated they felt the removal of their attention resulted in problem behavior. Despite this, the caregivers were not included in the FA resulting in ambiguous data identifying multiple functions. Perhaps if the caregivers had been involved, results would have been more precise. In order to create the most effective intervention, the FA must yield clear results (Miller et al., 1998) and this may indicate a stronger role of caregivers in the implementation of the FA.

Carrying on this line of work, Ringdahl and Sellers (2000) noted that if the presence or absence of certain stimuli changes the function of behavior, results may be less clear and require further inspection. Another possible explanation for ambiguous results in FAs is that the stimuli (tangible item, setting, attention) being introduced during FA procedures does not match the stimuli in the child's natural environment where the problem behavior typically occurs (Ringdahl & Sellers, 2000; Ripple, 2019). This provides yet another motive to include caregivers in FAs. Caregivers have a specific learning history with the child which means behaviors may only be present, or present at high enough rates to determine function, when in the presence of that adult (Lang et al., 2008).

Not only has caregiver involvement in the implementation of FA methods been supported, but comparing the results of FAs led by parents and FAs led by clinicians provide further evidence of the importance of caregiver led FAs (Strachan et al., 2009). Recent research has focused on identifying better ways to identify functions of behavior when clinician led FA

results are ambiguous (Kurtz et al., 2013; Ringdahl & Sellers, 2000). Over a course of 30 years, which includes 158 FAs, only 15% have been conducted in a setting that involves the caregiver, which suggests more research on the involvement of caregiver led FAs is needed (Beavers et al., 2013).

Of the caregiver led FA, the following populations have been included: Autism Spectrum Disorder, Intellectual Disability, Down Syndrome and overall developmental delays (Kurtz et al., 2013). Medically complex diagnoses, such as CHARGE syndrome, have been less studied in the behavioral assessment literature (Ripple, 2019), and only one known study has included a participant with CHARGE in their parent led behavioral assessment (Kurtz et al., 2013). CHARGE syndrome is a unique population to evaluate behavioral assessment procedures due a history of behavioral concerns noted in the literature and the significant role parents pay in the lives of individuals with CHARGE.

CHARGE Syndrome

The word CHARGE itself is an acronym representing each common medical complexity: coloboma, heart defects, atresia of the choanae, retardation of growth or development, genital abnormalities and ear anomalies of the inner and/or outer ear (Blake & Prasad, 2006). Although early literature (Hall, 1979; Pagon et al., 1980) suggested severe cognitive impairment for individuals with CHARGE was definite, later and more recent literature (Blake & Brown, 1993; Salem-Hartshorne & Jacob, 2004) have reported that cognitive and adaptive functioning among individuals with CHARGE is diverse and typical functioning is not uncommon. When one considers the medical complexities and sensory impairments specific to CHARGE (e.g. deaf-blindness, heart defects, inner ear and balance difficulties), it is logical that this population also presents with a behavioral phenotype specific to the CHARGE diagnosis (Hartshorne et al.,

2005; Hartshorne, 2010, p. 317). Along with medical complexities comes numerous hospital stays, surgeries, etc. which caregivers are present for further supporting the presence of caregivers in behavioral assessment.

A behavioral phenotype has been suggested alongside the clinical and genetic diagnosis of CHARGE syndrome (Hartshorne et al., 2017). Specifically, in CHARGE Syndrome, individuals may experience pain, multiple sensory deficits or anxiety (Hartshorne et al., 2017). Given the sensory deficits among individuals with CHARGE, communication and language skills are often underdeveloped (Swanson & Hartshorne, 2011). A lack of communication combined with experiencing pain or anxiety may result in frustration and inappropriate behaviors (Swanson & Hartshorne, 2011). For example, if an individual is experiencing pain in their leg, but cannot vocally tell their caregiver, "My leg is really hurting. Can you please help?", they may resort to inappropriately vocalizing and/or hitting their caregiver or the area that is in pain in order to communicate the pain they are experiencing. Stratton and Hartshorne (2019) have demonstrated that individuals with CHARGE often experience chronic pain while other researchers (Symons & Danov, 2005) have noted that when pain increases, problem behaviors such as self-injury and aggression also increase. Beyond pain, challenging problem behavior is quite common in the behavioral literature for CHARGE (Hartshorne et al., 2017). Communication delays and other difficulties exacerbate such behaviors.

When one considers the multiple disabilities (e.g., deaf-blindness, physical limitations, sleep disorders, feeding difficulties, etc.) an individual with CHARGE experiences, it becomes obvious typical procedures to assess behavior may not best meet the needs of this population. Also, considering the level of involvement required from caregivers such as attending multiple medical appointments and procedures, providing basic care (e.g. administering feedings,

changing diapers, administering medication, addressing sleep difficulties, etc.) and continuously advocating for CHARGE Syndrome and their child's specific needs, it can be inferred caregivers are present during most settings and activities in which problem behavior can occur. Because caregivers of individuals with CHARGE will likely continue to be the present when problem behavior occurs, they should be included in the behavior assessment not only to gain the clearest results, but also to ensure they understand the function of behavior and the role this has on intervention planning. Ultimately, it is hoped that if a parent or caregiver can understand the function, how the function impacts intervention planning, they will also be more likely to follow through with treatment designs and can generalize the intervention to other settings, such as the school or community. Beyond this, as highlighted above, if a parent is likely to be present in the environment and control the antecedent variables prior to challenging behavior, they should be involved in the assessment to ensure accurate results are obtained (appropriate identification of the function of behavior), rather than a clinician-led FA.

Given the commonly known problem behaviors in CHARGE and the high likelihood a parent is present when challenging behaviors occurs, due to protection of the child and care needed, it is necessary in the behavioral assessment literature that we include caregivers/parents of individuals with CHARGE in our investigations. Prior to the inclusion of parents and caregivers familiar with the child in an FA, training procedures are necessary to guarantee appropriate implementation of the FA.

History of FA Training Methods

When considering how to train individuals in conducting functional analyses, there has been research training graduate students and clinicians who will lead the assessment and

separately budding research in training caregivers or parents. The following will provide a review of both.

Training Graduate Students and Clinicians

FAs in general are feasible to learn. Iwata and Dozier (2008) commented that a strength of functional analysis methodology is the ability for functional analysis methods to be easily understandable and adaptable to multiple settings which, in turn, make these methods easy for professionals and others without an extensive ABA background to learn to implement as effectively as previous researchers (Floyd et al., 2005) have advocated. For nearly 40 years, training has included written descriptions of FA conditions and requiring learners to meet a certain level of treatment integrity across a number of practice sessions (Iwata 1982/1994; Iwata et al., 2000; Kurtz et al., 2013; Moore et al., 2002). As technology has advanced, pre-taped sessions of graduate students simulating conditions were shown to trainees as a second step after reviewing written descriptions (Iwata et al., 2000).

Iwata et al. (2000) trained undergraduate students to conduct the attention, play and demand conditions based on Iwata et al. 1982/1994 descriptions. To avoid potential harm to actual clients engaging in problem behavior, Iwata et al. (2000) utilized graduate students to role play as clients. Each attention, play, and demand conditions lasted 5 minutes. A target problem behavior of self-injurious behavior was selected for this study. Graduate students role playing as clients received a script detailing when to engage in target and non-target behaviors. Five (5) scripts were created for each condition. The number of target vs. non-target behaviors was the same for each script. However, the sequence in which they occurred varied. Baseline consisted of "therapists" reviewing Iwata et al. 1982/1994 methods and being instructed to complete each condition without feedback. Training consisted of two phases. The first phase consisted of an

overview of conditions and their purpose, presentations of videos of simulated conditions, then a 20-item quiz about the conditions. The second phase consisted of "therapists" conducting the conditions in a fixed schedule of attention, play, then demand followed by feedback from the trainer. Baseline conditions were repeated to measure the effects of the training. Results of Iwata et al. (2000) demonstrated these training methods to be effective in training undergraduate students to conduct FA conditions based on Iwata et al. 1982/1994). Because Iwata et al. (2000) used a multiple baseline design, time requirements varied. Overall, it took 3-4 hours for participants to complete the study.

Moore et al. (2002) extended Iwata et al. (2000) by adding a modeling component during feedback sessions to train teachers to conduct FAs. During modeling, trainers would review incorrect procedures during FAs with trainees and model corrections while also praising correctly implemented procedures. Trainees were allowed to rehearse the procedures again. Moore et al. (2002) trained teachers and focused on target behaviors specifically reported by teachers. Other adaptations made by Moore et al. (2002) included only training conditions related to a suspected function and including a phase in which teachers conducted conditions in the classroom with actual students. Training methods developed and implemented by Moore et al. (2002) were effective in training teachers to implement specific FA conditions. Although Moore et al. (2002) did not list a time requirement, because the study was modeled after Iwata et al. (2000), it can be estimated the time requirement was similar of 3-4 hours.

Training Caregivers

As previously mentioned, simply presenting and explaining written descriptions of each condition with a quiz following has been demonstrated as efficient in training personnel to implement FA procedures (Kurtz et al., 2003). In Kurtz et al. (2003) and Kurtz et al. (2013),

researchers used methods similar to Iwata et al. (2000) and Moore et al. (2002) of providing written descriptions, having participants take a quiz, modeling implementation and giving feedback to participants while they complete conditions. In Kurtz et al. (2003), training of caregivers to implement FA procedures, researchers had an experienced clinician remain in treatment room until caregivers were able to implement procedures with at least 90% treatment integrity. Training in Kurtz et al. (2003) took longer due to numerous modifications made to conditions in order to better reflect natural antecedents and consequences in the child's behavior, but this led to more generalizable and socially valid interventions. Kurtz et al. (2003) also noted that having caregivers so heavily involved in training, implementation and modification led to parents having a better understanding of basics of ABA and their child's behavior which in turn led to parents being more likely to continue implementing the functionally based interventions. To extend literature, Kurtz et al. (2013) compared results of clinician led and caregiver led FAs to demonstrate including someone from the child's natural environment provided clearer results.

Most often, behavioral literature has focused on training parents and teachers to implement FA methods in clinical or academic settings, however, Stokes and Luiselli (2008) focused on conducting training in the home setting. Stokes and Luiselli (2008) used similar procedures of Iwata et al. (2000), Moore et al. (2002) and Kurtz et al. (2003), but broke the steps into phases using a multiple baseline design across parents. Stokes and Luiselli (2008) also included a maintenance probe that demonstrated parents were able to maintain implementation skills when it came time to conduct the FA with their child. When comparing multiple baseline results, Stokes and Luiselli (2008) found that parent accuracy was highest when video feedback was added to training procedures. For example, researchers and trainees together reviewed recorded sessions of the trainee implementing FA methods while the researcher provided praise

and correction. When a social validity measure was conducted, parents reported having their FA session filmed and later reviewed with a researcher who gave feedback most favorable and only receiving verbal and written feedback as least favorable (Stokes & Luiselli, 2008).

Kurtz et al. (2013) replicated training procedures (reviewing written descriptions of conditions, watching simulated videos of conditions, watching therapists' simulate conditions, conducting in vivo sessions with therapists then receiving feedback during practice and actual FA conditions) conducted by Kurtz et al. (2003) and found these training procedures were still effective in training caregivers to accurately implement FA procedures. Lambert, Bloom, Kunnavatana, Collins and Clay (2013) used established training procedures (Iwata 1982/1994; Iwata et al., 2000; Kurtz et al,. 2003; Kurtz et al., 2013; Moore et al., 2002; Stokes & Luiselli, 2008) and added a component that trained residential staff to collect FA data. During this additional data collection training procedure, trainees were given a completed FA data sheet and trainers went through the data sheet and discussed why each data mark counted.

Additionally, Lambert et al. (2013) had trainers engage in target and non-target behavior during simulated role-play conditions rather than trainers only engaging in target behavior as previous training procedures (Iwata, et al., 2000; Moore et al., 2002). Lambert et al. (2013) used a multiple baseline design across trainees and found that training procedures used were effective no matter how long trainees remained in baseline or how quickly trainees received instruction. In a systematic review of training staff, training procedures have been noted to last 7.81 hours, which can be explained by considering this time might be including re-training time if criteria was not met and training time for training personnel to implement functional behavior assessments rather than just functional analysis procedures (McCahill et al., 2014).

In this same systematic review, the training component found to have the most effectiveness was feedback during or immediately after implementation of FA procedures (McCahill et al., 2014). The FA method which resulted in the shortest training time, an average of 10 minutes, was the brief FA (McCahill et al., 2014; Schumate & Wills, 2010). Surprisingly, modeling and rehearsal components were found to be less effective in training procedures (McCahill et al., 2014). Social validity measures in this same review of eight studies training personnel to implement FA procedures in an academic setting, rated being trained to implement FA procedures as either favorable or highly favorable, and participants reported a positive change in their viewpoint of ABA procedures. This demonstrated that trainees felt these procedures would help develop interventions that would be useful in the school year and trainees had intentions of continuing to implement these procedures with other students (McCahill et al., 2014).

Considering the current COVID-19 pandemic, training caregivers to conduct FA's in the home with a video feedback component, such as Stokes and Luiselli (2008), seems most feasible and relevant to the behavioral needs of families. In a literature review of virtually conducted FAs, Schieltz and Wacker (2020) stated FAs can be conducted via telehealth, individuals can be trained to conduct FAs via telehealth and the function of behavior can be identified via telehealth conducted FAs. With specific regards to training, Schieltz and Wacker (2020) noted there was high treatment fidelity when a behavior coach was providing feedback from a remote site. Further, Schieltz and Wacker (2020) noted future research will include a shifting focus to evaluating training methods for telehealth FAs and including caregivers in training (Schieltz & Wacker, 2020). Similar to Kurtz et al., (2013) literature review of caregiver led FAs, Schieltz and Wacker (2020) also have a limited number of participants with a genetic syndrome (10%) and no

participants reported to have CHARGE Syndrome, a noted gap in the literature for this unique population and suggests another future direction of research.

Regardless of modifications made, training methods that contain the basis of training procedures outlined by Iwata et al. (1982/1994) have been demonstrated to be effective in teaching skills to implement FA methodology across people such as caregivers and teachers (Kurtz et al., 2003; McCahill et al., 2014; Moore et al., 2002), across target behaviors (Iwata 1982/1994; Stokes & Luiselli, 2008), across settings (Iwata et al., 2000; Lambert et al., 2013) and across age ranges of clients (Kurtz et al., 2013). Continuing to train teachers and caregivers to implement ABA procedures such as functional analysis methodologies will continue to grow the partnership between all individuals who are involved in the assessment and intervention process of in children and adults engaging in problem behavior (Lerman et al., 2015).

Conclusion

As an applied field of psychology, professionals in ABA and School Psychology alike should not forget our theoretical basis and those calls, made by founding members, for progressing forward our research and techniques to ensure the most effective and comprehensive methods (Bijou, 1955; Bijou, 1957; Bijou et al., 1968; Bijou, 1970; Iwata et al., 1982/1994). Even research conducted 30 years ago recognized the importance of naturalistic variables and called their effects to be measured during functional analysis procedures (Mace et al., 1986). Even the most highly regarded and theoretically founding FA procedures have been urged to be modified to include caregivers or other naturally occurring individuals to identify the function of behavior (Beavers et al., 2013; Iwata et al., 1982/1994).

If caregiver led FAs can give clearer results (Kurtz et al., 2013) and can be used to assess behaviors that can cause an impact on quality of life or serious harm in a manner that leads to

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effective and functionally based interventions (Cooper et al., 1990; Cooper et al., 2014) to decrease these potentially harmful behaviors, (e.g. physical, social, developmental etc.) it makes ethical and clinical sense to continue to train and include caregivers in the functional analysis of problem behaviors.

One specific population that may benefit from increased use of caregiver led FAs and also has a demonstrated gap in behavioral assessment literature, is individuals with CHARGE syndrome. Currently, there is a limited amount of research specific to assessing problem behavior among CHARGE Syndrome (Ripple, 2019) and even further limited research focusing on training caregivers of individuals with CHARGE Syndrome to assess problem behavior (Kurtz et al., 2013).

Specifically, for this population, tele-training is critical. First, considering the COVID-19 pandemic and the medical fragility among this population, providing a way to assess behavior that limits exposure to COVID-19 is vital. Also, because CHARGE is so rare, often families are not located near a facility that is familiar with CHARGE that can meet their individual needs. Tele-training provides this opportunity to families who are unable to access facilities with an understanding of CHARGE Syndrome, its medical complexities and its unique behavioral phenotype.

CHAPTER III

METHODOLOGY

Research Question

This study looked to answer the following question: Are virtual training methods effective in training parents/caregivers of individuals with CHARGE to lead brief FA conditions?

Independent and Dependent Variables

The independent variable was the training methods being used to train caregivers to conduct conditions of a brief FA. The dependent variable being measured to determine the effectiveness of training methods was the percentage of accurate responses by caregivers while conducting conditions during the post training phase in which no feedback was provided. Percentage of accurate responses were recorded using a 10 second partial interval schedule during each 5-minute condition conducted by the caregiver during the post training phase. These were the same procedures as used in Iwata et al. (2000).

Participants and Setting

Participants included 3 parent/caregiver pairs who are parents/caregivers of individuals with CHARGE syndrome. One caregiver played the role of a therapist and conducted FA conditions while the other caregiver followed a script playing the role of the child. The caregiver playing the role of the therapist served as the main participant. Data was only collected for the

accuracy of steps in conditions completed by the caregiver role playing as the therapist. Upon completion of training phases, caregivers were asked to complete a social validity scale to measure acceptability.

Participant pairs were required to have access to a personal computer, laptop, or iPad with high-speed internet (or ability to smoothly use video chat features) to participate. All training sessions were conducted via Cisco WebEx platform which is HIPPA compliant and offers protections for confidentiality. During all training sessions, the graduate student locked the meeting once both caregivers were present to add an additional protection of privacy. All participants were able to participate in a video chat and speak English.

Materials

Participant Demographic Questionnaire

A participant/caregiver demographic questionnaire (Appendix C) was provided to caregivers prior to training to gain demographic information about the participant and their child. Questions aimed to gather information about general background including what, if any, problem behavior was exhibited by the child at home, the caregiver's discipline approach, how many children are in the home, caregiver education level, and their familiarity with functional analyses.

To maintain anonymity, caregivers were not asked to include their name when completing the survey. Therefore, the results were not able to be specified to a caregiver. The average age of participants was 40. Two females and one male participated and all were Caucasian. Highest levels of education ranged from a High School Diploma to a master's degree. Behaviors reported in the survey that participant's children engaged in were self-injurious behavior, tantrum behavior and physical aggression towards others. The frequency of these behaviors reportedly occurred multiple times per day and multiple times per week. Strategies

reported by caregivers included planned ignoring, blocking self-injurious behavior and discussing behavior. Therapies reported by caregivers included ABA therapy, physical therapy, speech therapy, and occupational therapy.

Graduate Student Training

Graduate students recruited to assist in training and data collection were required to attend a training session in which they reviewed all materials and procedures including caregiver training procedures. To ensure graduate students assisting were able to accurately collect treatment integrity data for caregivers, they were asked to watch a sample video of an FA session and collect treatment integrity of the clinician's procedures. To be eligible to assist in the study, each graduate student had to meet 90% or higher agreement on treatment integrity from watching the sample video. During caregiver training, graduate students were provided a printed overview of training procedures to ensure no step was missed. Two graduate students assisted in this study with 100% accuracy for treatment integrity.

Participant/Caregiver Training

Each caregiver pair was partnered with a graduate student who served as their trainer. Training methods were based on Iwata et al. (2000). Training consisted of two phases: Phase I informational and baseline sessions and Phase II feedback and training sessions. Five scripts were created for each condition and were used by the caregiver role playing as a child. The scripts informed the "child" of what problem behavior to engage in at what time during each condition (Appendix D). Each script contained the same number of target vs. non-target behaviors, but the order in which each behavior occurred varied for each script. A multiple baseline design was used to measure the effectiveness of training methods. Each caregiver pair

was randomly assigned an order in the design. To measure the effectiveness of training methods, data measuring the percent of accurate responses by the caregiver role playing as the therapist was collected by graduate clinicians using a 10s partial interval recording method (Iwata et al. 2000). Visual representation of data (e.g., trend, variability, etc.) was used to measure the effectiveness of training methods. Each session consisted of running each of the three conditions one (1) time.

Before training sessions began, graduate students were assigned with participant/caregiver pairs and provided the methods description from Iwata et al. 1982/1984 (Appendix E). These descriptions were kept by the caregiver during all phases of training and could be accessed every time a condition was run. During the first meeting before training began (baseline), caregivers were told to conduct the three conditions and were given no feedback. How many times each caregiver completed a baseline session of conditions was determined by what order they were in the multiple baseline design (e.g. one caregiver ran one session, one caregiver ran two sessions, etc.) (Iwata et al., 2000). The caregiver playing the role of a child followed a pre-made script outlining when to engage in problem behaviors. Percentage of correct caregiver responses was collected and this served as baseline. Once all baseline sessions were complete, caregiver pairs moved into phase I of training.

During phase I, graduate clinicians reviewed previously provided written descriptions and described each condition and their purpose. Next, caregivers were show video simulations of each condition being implemented with 100% accuracy (Iwata et al., 2000). The videos were created by graduate students using the procedures outlined by Iwata in 1982/94 and in Iwata et al. (2000). Then, caregivers were given a 20-item quiz via Quizlet (Appendix F) and had to obtain a score of 90% or higher to move onto phase II, as outlined by Iwata et al. (2000). If

caregivers did not reach 90%, the videos were re-shown until 90% was reached on the quiz. If caregivers did not meet the quiz mastery criteria in 5 attempts, they were discontinued from the study. Items in the quiz asked information about the purpose and procedures of each condition, as shown in Appendix E and are identical to Iwata et al. (2000).

During phase II, caregivers conducted conditions just as in baseline except they were given feedback after conditions were conducted, as outlined by Iwata et al. (2000). The caregiver role playing as the therapist had to reach 95% or higher accuracy on two consecutive sessions of each condition to have completed this phase. This criteria did not include the first session of conditions conducted after baseline. If the caregiver did not reach 95%, feedback was provided by the graduate clinician reviewing the recorded sessions with the caregiver while praising correct responses and correcting incorrect responses. This was repeated until the caregiver reached two consecutive sessions of running the three conditions at 95% accuracy or higher. All conditions in one session must have met 95% accuracy. If this criterion is not met in 10 sessions, training ended for that participant.

Once phases I and II were completed, caregivers conducted sessions exactly as in baseline to measure the effects of training methods. During all sessions, the caregiver role playing as the client had a script which instructed them to engage in target and non-target behaviors at specific times. Five scripts were created for each condition. Each script had the same number of target vs non-target behaviors but in varied sequence. Scripts were randomized in order. During all sessions, conditions were conducted in the same fixed order: attention, play, and lastly demand. Feedback was not provided during this post-training, as outlined by Iwata et al. (2000).

During the attention condition, when the caregiver role playing the child engaged in the target behavior of self-injurious behavior, the trainee would provide brief attention by saying a phrase such as "Oh, please don't do that. You'll hurt yourself". During the demand condition, the trainee gave a command every 30 seconds. Once the demand was presented, if the "client" did not engage in the task within 5 seconds, the "therapist" initiated the second prompt in a graduated 3 prompt procedure. The first prompt included the initial delivery of the demand. The second prompt included a verbal reminder of the demand while the "therapist" modeled the demand. The third prompt included a verbal reminder of the demand while physically guiding the "client" through the demand. If at any point during the prompts, the "client" complied with the demand, the "therapist" praised the "client" and waited 30 seconds to deliver a new command. If the "client" engaged in the target behavior during the prompts, the "therapist" allowed the "client" to escape from the demand by saying a phrase such as "Okay. You don't have to x". During the play condition, the "client" had preferred toys to play with and was given attention (i.e., saying "Oh I love how you are playing") by the "therapist" every 30 seconds. If the "client" engaged in problem behavior, the "therapist" ignored the problem behavior.

Data were collected using paper and pencil. Using a 10 second partial interval for each 5-minute condition, accuracy of implementation of steps by the caregiver role playing as a therapist was collected, as outlined by Iwata et al. (2000). The accuracy of implementation of steps served as the dependent variable. Data collection sheets can be found in Appendix G. Appendix G is measuring the percentage of accuracy of correctly implemented steps completed by the caregiver role playing as the therapist by condition and by phase. Graphs of percentage of correct responses per condition were created for each participant. Data was visually analyzed by comparing level, trend, variability, overlap, immediacy of effect, and any other patterns across

phases. Visual analysis is an effective method to analyze results in single subject research

designs (Kratochwill et al., 2015) as it allows for low error (Rakap, 2015).

Participants conducted simulated functional analysis sessions in a fixed repeating

sequence (attention, play, demand) as outlined by Iwata et al. (2020). A multiple baseline design

was used, as was used in Iwata et al. (2000). A multiple baseline design requires certain

participants to remain in baseline data collection for more sessions than other participants. This

design allows for more control over data and more confidence in visual analysis as it allows the

same methodology to be measured across different individuals, settings, behaviors, etc., in this

case different individuals. In Iwata's study, the multiple baseline design was used across

participants (Iwata et al., 2000), as seen in the current study.

Interobserver agreement involves the same data being collected by multiple researchers.

This additional data collection ensures the data is being accurately collected across researchers

(Kratochwill et al., 2015). All sessions were recorded in order to allow collection of IOA data.

Additional clinicians reviewed videos and took percentage of correct responses data for 100% of

all conditions conducted (Kratochwill et al., 2015). IOA data were defined as Number of

agreements / number of agreements plus disagreements x 100 and was collected for all sessions.

For Participant 1, IOA data averaged at 94% for all baseline conditions, 94% for all intervention

conditions and 91% for all post training conditions. For Participant 2, IOA data averaged at 99%

for all baseline conditions, 97% for all intervention conditions and 93% for all post training

conditions. For Participant 3, IOA data averaged at 99% for all baseline conditions, 92% for all

intervention conditions and 87% for all post training conditions. IOA data for all three

participants met research standards of at least 85% agreement (Kratochwill et al., 2015).

Treatment integrity data was collected to ensure participants role playing as the child followed scripts accurately. Treatment integrity data was also collected to ensure the researcher followed procedures (e.g. no feedback during Phase I or during Post Training). See Appendix G for all treatment integrity data sheets. For script treatment integrity, data was collected for 33% of all phases and was found to have an average accuracy of 100%. Regarding clinician procedural treatment integrity, data were collected for 33% of all phases and was found to have an average accuracy of 100%.

The Treatment Acceptability Rating Form- Revised (TARF-R) located in Appendix H was used to measure the social validity of the procedures in the current study. Langthorne & McGill (2011) used the TARF-R to measure the social validity of functional analyses completed for children with Fragile X Syndrome and Smith-Magenis Syndrome. Results from the social validity measures in Langthorne & McGill's (2011) study indicated high acceptability among caregivers for functional analysis methodology. Five out of six validity surveys were returned. The highest score possible was a 41. Survey number 1 received a score of 35, survey two received a 31, survey three received a 30, survey 4 received a 29 and survey 5 received a 29. In general, participants found this study beneficial with a range of 29-35 indicating neutral to acceptable levels (mostly 4s and 5s) of acceptability (Langthorne & McGill, 2011). Qualitative comments included, "I think the assessment would be really beneficial for a non-verbal child," "Would love to see this done in person to see if there are any differences in engagement" and "Glad this group is being looked at since we have lots of trouble with behaviors".

CHAPTER IV

RESULTS

The purpose of this study was to explore and measure the effects of training methods originally developed by Iwata et al. (2000) that were adapted to fit a virtual format due to the COVID-19 pandemic. Further, this study looked to expand the behavior assessment literature to include the CHARGE Syndrome population. Lastly, this study looked to provide caregivers with the training to accurately identify the function of a behavior when reviewing data. The results are discussed by each caregiver pair regarding accuracy percentages across baseline and training phases and visual analysis (e.g. trend, level and variability).

During Phase I, participant 1 received an average accuracy percentage of 82% for the Attention condition (Circle), 90% for the Play condition (Square) and 84% for the Demand condition (Triangle). Phase I data is slightly variable for all conditions and a lower level is demonstrated for the attention condition. No trend was noted for Phase I. Once Pair 1 completed training phases, an immediate increase and stability and level can be seen for all conditions. During Post-Training, Participant 1 received an average of 100% accuracy for Attention, 97% for Play and 98% for Demand. Only in the Demand condition is a slight increasing trend noted. Visual analysis suggests the training methods were effective for Participant 1. See Figure 1 for graphed results.

During Phase I, Participant 2 received an average accuracy percentage of 94% for the Attention condition (Circle), 88% for the Play condition (Square) and 81% for the Demand

condition (Triangle). In Phase I, variability is seen across all conditions. However, there is much more variability among the demand condition. A slight increase in trend is seen for the play condition. Once Participant 2 completed training phases, an immediate increase and stability in average percentage of accurate responses can be seen. This is specifically true for the Demand condition as the participants' averages increased to 100% for Attention, 96% for Play and 100% for Demand. No trends were noted during Post Training. Visual analysis suggests the training methods were effective for Participant 2. See Figure 1 for graphed results

During Phase I, Participant 3 received an average accuracy percentage of 96% for the Attention condition (Circle), 85% for the Play condition (Square) and 84% for the Demand condition (Triangle). Significant variability is seen across conditions during Phase I. Differences in level across condition is also observed. The demand condition demonstrates an upward trend. During Post-Training, Participant 3 received an average of 100% accuracy for Attention, 95% for Play and 92% for Demand. An immediate increase and stability in average percentage of accurate responses can be seen. However, data remains slightly variable for the Demand condition. Visual analysis suggests the training methods were effective for Participant 3. See Figure 1 for graphed results.

The current study aimed to measure the effectiveness of virtual training methods to train caregivers of individuals with CHARGE Syndrome to conduct conditions of a Brief FA. The results from Baseline (Phase I) and Post Training data indicate these training methods were effective. When you consider the data collectively across participants, in a multiple baseline design, control is demonstrated by change occurring after movement into the next phase (post-training), as observed by vertical analysis for each participant. All participants demonstrated an

increase in skills (accuracy of implementation) for each attention, play, and demand condition in post-training, indicating the virtual training methods were effective to teach each condition.

Figure 1

Graphed Percentages of Accurate Responses During Phase I and Post Training Phases
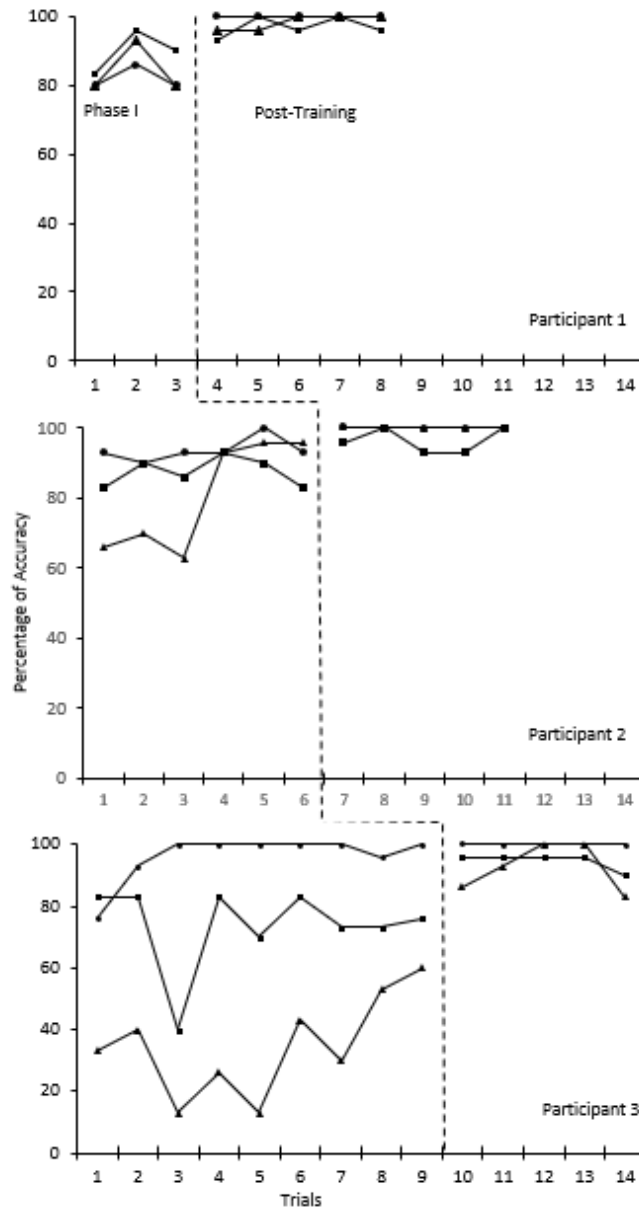
Note. Above are graphed accuracy percentages in a multiple baseline design across participants for Phase I and Post Training Phases. Additional information can be found on pages 27-28. In this graph, the circles represent the attention condition, the squares represent the play condition and the triangles represent the demand condition.

CHAPTER V

DISCUSSION

Multiple training methods (Kurtz et al., 2003; McCahill et al., 2014; Moore et al., 2002) have been used to train individuals inside and outside the field of behavior analysis to conduct FAs. In general, common training methods include explanation of conditions and their purpose (didactic presentations), use of quizzes to ensure basic principles are understood from a presentation, as well as demonstration of the conditions and informal feedback when trainees begin practicing conducting conditions. In 2000, Iwata and colleagues developed training methods that used a video modeling component to train undergraduate students studying behavior analysis to complete conditions of a brief FA. This study was expanded in 2002 by Moore et al. Within their investigation, Moore et al. (2002) added a training component in which teachers conducted conditions in the classroom with students live as behavior occurred. While these methods have been found to be successful, it is unknown the outcomes of teaching FAs in a virtual format. Virtual instruction is a necessary gap to fill as it may be challenging at times to train clients who live at great distances from treatment centers to participant in FAs, as well as students who are enrolled in online behavioral coursework needing to know if they gained the same experience as on-campus live demonstrations, or for individuals who may be receiving teletherapy where parents and caregivers are serving as primary clinicians. Adding a virtual video modeling training experience helps to bridge the gap for families who have children with rare conditions as well.

CHARGE Syndrome presents with medical complexities that contribute to a behavioral phenotype which include balance and mobility difficulties, fatigue, chronic pain, multiple surgeries, feeding difficulties, growth and development delays and communication difficulties (Hartshorne et al., 2017; Stratton & Hartshorne, 2019). Because individuals with CHARGE Syndrome often require extensive medical visits, medical supports and individualized supports, it can be expected caregivers are present for the majority of problem behaviors and have an in depth understanding of what problem behaviors are occurring. The impacts of problem behavior are present among not only the child (e.g. reduced academic engagement, reduced social interaction) but also impact family life and stress among caregivers. Therefore, it is especially necessary to include this population in research including caregivers in behavior assessments, as was previously explored by Kurtz et al. (2013). No prior investigation has explored including training parents as facilitators of the brief FA in a virtual environment.

The current study aimed to answer if virtual training methods based on those outlined by Iwata et al. (2000) in-person, would be effective in training caregivers of individuals with CHARGE syndrome to conduct conditions of a Brief FA. Current results demonstrate these virtual training methods were effective in preparing caregivers to conduct conditions of a brief FA, specifically attention, play, and demand conditions. Investigating online virtual training was particularly relevant to this population given necessity to adhere to COVID-19 safety measures, as well as to increase access to families to participate in behavioral assessment. Because CHARGE Syndrome is so rare, families may not live close enough to resources specializing in CHARGE Syndrome. A virtual platform can increase accessibility to families in the CHARGE Syndrome community, as well as allow for parent facilitated FA, which may present different assessment results than an FA ran by a clinician less familiar with the child. Overall, results

demonstrated the training methods outlined are effective in training caregivers using a virtual platform. Families within the CHARGE syndrome community may now be able to participate in brief FA conditions, with further investigation of virtual training formats, which may ultimately result in more valid and effective assessment results which ultimately impact behavior plans for their child.

Future research should focus on continuing to include the CHARGE Syndrome population in behavioral research. Various types of FA and assessment procedures should continue to be investigated to determine the most effective and efficient method to assess problem behavior virtually for this population. During our study, caregivers frequently asked questions about what "next steps" would be in treating problem behavior. Therefore, future research should focus on training caregivers to take the next step past assessment, which would include participation in the development and implementation of behavioral interventions. Future training may include the addition of psychoeducation such as explanation and didactic training on the principles and reasoning behind this methodology. Additionally, it would be beneficial for future research to train other individuals regularly involved in the child's routine in behavior training (e.g., nurse, in home care provider, teacher and other personnel).

Kurtz et al. (2013) demonstrated effective in-person training of caregivers to implement FA conditions with their child in-person and compared the results to clinicians. However, a limited number of participants had CHARGE Syndrome. A comparison of in-person to virtual FA results would be an important next area of further study. For example, Kurtz et al.'s (2013) study could be expanded upon to specifically include caregivers of individuals with CHARGE Syndrome and the individual themselves who has CHARGE. Caution should be advised when conducting future research to ensure FA's are conducted/trained only under the supervision of a

qualified professional. Participants should be instructed to follow this advisement to ensure safety and ethical principles of the field are followed.

The main limitation in the current study is the amount of time and commitment required from participants. Although time commitment was estimated, it was much lower than the actual commitment. Due to conflicts regarding child's behavior, childcare arrangements, illness and traveling conflicts families frequently had to reschedule sessions. These complications led to two families dropping out of the study. Due to families dropping out of the study and data collection deadlines approaching, the third participant's data had to be collected in one full day instead of across multiple sessions. This allowed less time with condition descriptions than other participants had. It also allowed quicker time between receiving feedback and applying the feedback to next sessions. In hindsight, it would have been beneficial to have all participants complete data collection in one day.

For families who were able to remain in the study, the amount of sessions required to collect all data was much larger than estimated. This is likely due to families, at times, not being able to complete all planned data collection during sessions. Another limitation and contribution to increased time commitment was that the participant and another caregiver/parent were necessary to be present to participate in the study. Because both parents participated in the sessions, childcare was limited and natural distractions (i.e., child exhibiting challenging behavior in an adjacent room) occurred as a result. Understandably, this caused distraction which could have affected data and increased the time commitment. Again, conducting all data collection in one day would have provided more preparation for childcare arrangements. While this is natural for families caring for children with high medical and complex needs, future investigations may consider limiting use of multiple parents/caregivers at the same time.

Although a multiple baseline design does provide control when assessing skills that have been taught and cannot be removed, longer baseline timelines allowed for more opportunities for natural self-correction. This limitation is a part of the design and could not have been avoided.

Lastly, ruling out previous parent involvement in behavior intervention may be necessary for future studies. For example, Participant 1 had recently been involved in an in-patient behavioral treatment facility in which they were exposed to conducting conditions. It is likely this participant had relatively high percentages in baseline which allowed little room for greater increases in improvement in accuracy in post training phases.

This study aimed to apply Iwata et al.'s (2000) methods to the population of caregivers of individuals with CHARGE Syndrome through a virtual training platform. This methodology was found to be effective in training this population to conduct conditions of a Brief FA. This not only aids in closing the gap in behavioral literature among the CHARGE Syndrome population, it aids in closing the gap in using caregivers in the behavioral assessment process. Demonstrating the use of a virtual platform can be effective in delivering these training methods will make it possible to reach families who are not only under resourced and may not be able to reach specialized facilities with professionals trained in CHARGE Syndrome, it will also make it possible for many more families diagnosed with a rare genetic syndrome such as CHARGE Syndrome to be reached by studies like the current study. Ultimately, effective training methods can more easily be accessed and disseminated to more families in need. In turn, this can also give professionals and researchers more insight about the impact of behavior in the home setting and the impact of involving caregivers in the assessment and treatment of behavior.

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APPENDIX A

IRB APPROVAL LETTER

MISSISSIPPI STATE
UNIVERSITY™

NOTICE OF DETERMINATION FROM THE HUMAN RESEARCH PROTECTION PROGRAM

DATE:	September 20, 2021
TO:	Kasee Stratton-Gadke, PhD, T.K. Martin Ctr for Tech & Disab, Anna McLain;Daniel Gadke;Laith Mazahreh;Mallie Donald;Mae Woodke;Nailah Kent;Tawny McCleon
	Anna McLain, Counsel Ed Psych & Foundation, Daniel Gadke, Counseling Ed Psyc & Foundations, Laith Mazahreh, Counseling Ed Psyc & Foundations, Megan Anderson, Counsel Ed Psych & Foundation, Mallie Donald, Counsel Ed Psych & Foundation, Mae Woodke, Counsel Ed Psych & Foundation, Nailah Kent, Dean of Education, Tawny McCleon, Counseling Ed Psyc & Foundations
PROTOCOL TITLE:	Evaluating Virtual Training Methods Conducting Brief Functional Analyses with Caregivers of Individuals with CHARGE Syndrome
FUNDING SOURCE:	
PROTOCOL NUMBER:	IRB-21-171
	Approval Date: September 20, 2021 Expiration Date: September 19, 2026

EXEMPTION DETERMINATION

The review of your research study referenced above has been completed. The HRPP had made an Exemption Determination as defined by 45 CFR 46.104(d)3. Based on this determination, and in accordance with Federal Regulations, your research does not require further oversight by the HRPP.

Employing best practices for Exempt studies is strongly encouraged such as adherence to the ethical principles articulated in the Belmont Report, found at www.hhs.gov/ohrp/regulations-and-policy/belmont-report/# as well as the MSU HRPP Operations Manual, found at www.orc.msstate.edu/humansubjects. As part of best practices in research, it is the responsibility of the Principal Investigator to ensure that personnel added after this Exemption Determination notice have completed IRB training prior to their involvement in the research study. Additionally, to protect the confidentiality of research participants, we encourage you to destroy private information which can be linked to the identities of individuals as soon as it is reasonable to do so.

Based on this determination, this study has been inactivated in our system. This means that recruitment, enrollment, data collection, and/or data analysis **CAN** continue, yet personnel and procedural amendments to this study are no longer required. **If at any point, however, the risk to participants increases, you must contact the HRPP immediately. If you are unsure if your proposed change would increase the risk, please call the HRPP office and they can guide you.**

If this research is for a thesis or dissertation, this notification is your official documentation that the HRPP has made this determination.

If you have any questions relating to the protection of human research participants, please contact the HRPP Office at irb@research.msstate.edu. We wish you success in carrying out your research project.

Review Type:	EXEMPT
IRB Number:	IORG0000467

APPENDIX B

RECRUITMENT MATERIALS

Participants needed for research for virtual training sessions to assess problem behavior

Dear Parent/Caregiver:

I hope this email finds you and your family well among the COVID-19 pandemic. Throughout the many CHARGE conferences I have attended, families continually ask for information and resources to aid in addressing problem behavior exhibited by their child. Parents/caregivers have also expressed desire for understanding problem behavior themselves. With both these topics in mind, we will be training parents/caregivers of individuals with CHARGE Syndrome to conduct a behavior assessment in order to better understand and be able to advocate for problem behavior exhibited by your child.

This study has been reviewed and approved by MSU's IRB board. Exempt Determination was granted. IRB number: IRB-21-171

How will the study work?
For this study, will ask parents/caregivers to participate in virtual training sessions in which you will be trained to conduct a mock behavior assessment. We will also ask caregivers to complete a demographic questionnaire to obtain background information about you, your household and your child's behavior. The questionnaire will take approximately 5 minutes to complete. Your child will not need to be present during the training sessions. You will need another adult responsible for caring for your child (i.e. other parent, grandparent, etc.) to participate in this study. To train parents/caregivers, caregivers will be asked to engage in role play with one caregiver role playing as the child and one caregiver assessing behavior. Participation in the virtual training sessions is *free of charge.* Sessions will be conducted across multiple days to increase feasibility. Overall, the time commitment would be approximately 2-4 hours. The scheduling of session times can be arranged to feasibly fit your schedule.
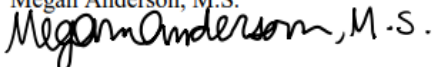
To participate in training sessions, you will need:
- Access to stable, high-speed Wifi
- Access to a personal computer, laptop computer or tablet to participate in virtual sessions (you will need to be able to see the researcher and the researcher will need to have a clear view of your environment)
- Ability to commit necessary time (2-4 hours)
- Access to a personal email account to share meeting links and other materials
- Speak and understand English

If you are interested in participating in this study or have further questions about participation in this study, please contact Megan Anderson, M.S. at ma697@msstate.edu or Dr. Kasee Stratton-Gadke at kstratton@tkmartin.msstate.edu

Wishing you and your family the best,
Megan Anderson, M.S.
Megan Anderson, M.S.
Ma697@msstate.edu

APPENDIX C

PARTICIPANT/CAREGIVER DEMOGRAPHIC QUESTIONNAIRE

Caregiver Demographics

Age:

Gender:

Race:
- o Caucasian
- o African American
- o Hispanic
- o Asian American
- o Indian American
- o Mixed Race
- o Other (please specify):

Education level:
- o High School Diploma
- o GED
- o Associates Degree
- o Bachelors Degree
- o Masters Degree
- o PhD
- o MD
- o Other (please specify):

Number of years you have been the parent/primary caregiver for your child with CHARGE Syndrome:

Are there other children living in the home?
      YES or NO

If yes, do one or more of your other children have disabilities?
      YES or NO

What is your highest level of education?

Behavior in the Home

Does your child engage in problem behavior (showing aggression towards self or others, tantruming, eloping/running away from you, etc.) at home?
      YES or NO

If yes, please list the top three problem behaviors exhibited by your child:

1.

2.

3.

If yes, select how often does your child engage in each behavior
- o Every Day All Day
- o Multiple Times Per Day
- o Twice Per Week
- o One Time Per Week
- o Once Per Month
- o Only in Certain situations such as hospital visits, etc. Please List Situation:

Select your first and most common typical method to address problem behavior.
- o Have a discussion with my child
- o Spank my child (use of corporal punishment)
- o Give my child a time out
- o Ground my child
- o Ignore the Behavior
- o Other, please list:

List any behavioral therapy or therapy to support challenging behavior your child receives:
- o Applied Behavior Analysis Clinic (ABA)
- o Play Based Therapy
- o Speech/Language Therapy
- o Behavior Intervention Plan (BIP) at School
- o Other:

APPENDIX D

SAMPLE SCRIPT

Caregiver Pair:	Session: Baseline Training Post-Training	Condition:
Time (minutes:seconds)	Behavior	Topography
0:30	Inappropriate Vocalization	Scream
1:15	Inappropriate Vocalization	Scream
2:00	Aggression Towards Materials	Throw Item
2:20	Inappropriate Vocalization	Scream
3:00	SIB	Hit arm
3:40	Inappropriate Vocalization	Scream
4:50	Inappropriate Vocalization	Scream

APPENDIX E

WRITTEN DESCRIPTIONS OF BFA CONDITIONS

Attention Condition

Purpose: This condition is designed to determine whether the target behavior is maintained by contingent attention delivered by a therapist. The condition involves remaining in a room with a client and ignoring all client behavior, except for the target behavior, which is followed by attention.

How to Conduct a Session: 1. Begin a session by directing the client toward the leisure materials that are present in the room. Tell the client that he or she should play with the toys while you do some work. 2. After issuing the initial instruction, move away from the client, sit in another chair, read or do some paperwork (or pretend to do so), and completely ignore all behaviors exhibited by the client except as noted below. 3. If the target behavior does not occur during the session, you will ignore the client for the entire session. Someone will inform you when the session is over. 4. If any behaviors other than the target behavior occur, ignore these also. Examples include appropriate behaviors (e.g., playing with the toys, smiling at you, or any attempts to talk to you or to interact with you in an appropriate manner) and inappropriate behaviors other than self-hitting (e.g., screaming, throwing materials, running around the room, aggression, etc.). 5. The only time you will attend to the client is when he or she engages in self-hitting. If the client exhibits the target behavior of self-hitting at any time during the session, do the following: (a) Go over to the client and verbally express concern and disapproval. For example, you could say something like, ''Stop that, you're going to hurt yourself,'' ''[Name], you shouldn't hit yourself; play with your toys,'' ''[Name], I don't want you to do that; you're going to get hurt,'' or something similar. (b) While you express concern, briefly touch the client's arm, place your hand on the client's shoulder, or physically block the hitting response, but do not physically restrain the client. The general idea is to express concern, briefly interrupt

the behavior, and calm the client. Do not shout at the client and do not handle the client roughly.

6. After a target behavior occurs and you have responded as indicated above (Step 5), resume ignoring the client until another target behavior occurs or until the session is over (Iwata et al. 2000).

Demand (Escape) Condition Purpose: This condition is designed to determine whether the target behavior is maintained by escape from task demands. The condition involves presenting a series of instructional trials to a client. Compliance produces praise, noncompliance produces a series of prompts, and occurrence of the target behavior immediately terminates the trial.

How to Conduct a Session: 1. Begin a session with you and the client seated at a table. Using the materials that are available, you will implement a series of trials to teach the client to perform a task. The task selected for this simulation is putting blocks in a bucket. 2. Activate a stopwatch at the beginning of the session. At the beginning of every 30- s interval (starting at 0), you will initiate an instructional trial. Thus, there will be approximately 10 trials during a 5-min session. Begin each training trial with the bucket and a block on the table in front of the client. The sequence to be used during each trial is as follows: (a) First deliver a clear instruction to the client, such as ''[Name], put the block in the bucket.'' If the client performs the response within 5 s (count to 5 slowly to determine this), or at least begins to initiate the response during that time, deliver praise (e.g., say ''nice job,'' ''that's great,'' ''good,'' etc.) when the client has finished. (b) If the client does not perform the response within 5 s, repeat the instruction and simultaneously demonstrate the response (i.e., you put a block in the bucket). If, following this demonstration, the client performs the response in 5 s, deliver praise as noted above. (c) If the client does not perform the response within 5 s of your demonstration, repeat the instruction

again and simultaneously provide physical assistance. That is, use your hands to help the client pick up the block and put it in the bucket. Do not deliver praise if you used physical assistance. (d) If, at any time during this sequence, the client emits the target behavior (self-hitting), immediately terminate the trial. Remove the materials from the table, turn away from the client, and ignore the client until it is time to begin a new trial. (e) If the client emits other inappropriate behaviors (screaming, throwing things, aggression, etc.), continue with the sequence; do not terminate the trial when these responses occur. 3. Repeat the above sequence after 30 s have elapsed since the trial began, and continue until the session is over (Iwata et al. 2000).

Play Condition Purpose: This is designed to be a general control condition, in which no demands are placed on the client, continuous access to leisure materials is available, and attention is delivered frequently independent of the client's behavior.

How to Conduct a Session: 1. Begin a session by activating a stopwatch and directing the client toward the leisure materials that are present in the room. You may say something like, ''Here are some nice toys; why don't you play with them for a while?'' or ''Would you like to play with these toys?'' (as you hand one to the client), or anything similar. 2. At least once every 30 s, deliver some form of attention to the client. For example, you can tell the client that he or she is playing nicely, ask if he or she is having fun, and so forth. You can also hand the client another toy, pat the client briefly on the shoulder, or smile at the client. The general idea is to provide some type of friendly, nondemanding interaction (lasting about 5 s) at 30-s intervals. 3. If the client attempts to interact with you appropriately (e.g., asks for something, hands you a toy, etc.), reciprocate. 4. If the client emits any form of inappropriate behavior, including the target behavior, do not deliver attention. 5. If the target behavior occurs precisely at the end of a 30-s

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interval (just as you are about to deliver attention), do not deliver attention. Instead, wait until the

behavior has stopped for 5 s, then deliver attention (Iwata et al. 2000).

APPENDIX F

QUIZ QUESTIONS (IWATA ET AL. 2000)

1. Which assessment condition (attention, demand, alone, play) is considered the control condition for the other three conditions?

2. In which assessment condition or conditions does the client have access to leisure items?

3. During all conditions, what should you do if the client engages in a disruptive or aggressive behavior (e.g., tips over a table or tries to kick the therapist) that is not a target behavior during the functional analysis?

4. What should you do if a client becomes injured during a session?

5. How do you begin an attention session (what do you say and do)?

6. When do you deliver attention to the client during the attention condition?

7. Give two examples of what you might say or do when delivering attention during the attention condition.

8. What should you do if the client asks a question or requests help during the attention condition?

9. How often do you deliver attention to the client during the play condition?

10. Give two examples of what you might say or do when delivering attention during the play condition.

11. What should you do if the client engages in the target behavior (SIB) during the play condition just as you are about to deliver attention?

12. What should you do if the client asks you a question during the play condition when you are not scheduled to deliver attention?

13. What should you do if the client engages in disruptive behavior (e.g., knocks over furniture, throws objects, etc.) that is not a target behavior during the play condition?

14. How often should you initiate training trials during the demand condition?

15. If the task during the demand condition is putting a puzzle piece into a puzzle, what should you say when initiating a trial?

16. If, during the demand condition, the client does not respond to your first prompt within 5 s, what should you do?

17. If, during the demand condition, the client does not respond to your second prompt within 5 seconds, what should you do?

18. What should you do if the client engages in the target behavior (SIB) while you are trying to get the client to work on a puzzle during the demand condition?

19. Should you praise the client during the demand condition if you had to physically guide the client to complete the task?

20. What should you do if the client asks for help completing the assigned task during the demand condition?

APPENDIX G

DATA AND IOA DATA COLLECTION SHEETSCondition: Date:

Caregiver: Phase: I

Minute	10s	20s	30s	40s	50s	60s
1						
2						
3						
4						
5						

Percentage of Correct Responses: __/30 = ____%

Condition: Date: Caregiver: Phase: II

Minute	10s	20s	30s	40s	50s	60s
1						
2						
3						
4						
5						

Percentage of Correct Responses: __/30 = ____%

Condition: Date: Caregiver: Phase: Post Training

Minute	10s	20s	30s	40s	50s	60s
1						
2						
3						
4						
5						

Percentage of Correct Responses: __/30 = ____%

APPENDIX H

TREATMENT INTEGRITY DATA COLLECTION SHEETS

Procedure	Check IF Occurred
Clinician instructs participant to run conditions in the same order (Attention, Play, Demand)	
During baseline, the clinician does not provide feedback regarding performance. Feedback regarding what condition is supposed to occur or what script is being used is acceptable.	

Baseline Treatment Integrity

__/__ = ___% accurate implementation

Phase II Treatment Integrity

Procedure	Check IF Occurred
The conditions were conducted in the same order each time (attention, play then demand).	
The clinician does not provide feedback **during** condition.	
The clinician provides feedback after to inform participants about the next step (reviewing video or not).	

___/___ = ___% treatment integrity

Post Training Treatment Integrity

Procedure	Check IF occured
Clinician instructs participant to run conditions in the same order (Attention, Play, Demand)	
During baseline, the clinician does not provide feedback regarding performance. Feedback regarding what condition is supposed to occur or what script is being used is acceptable.	

__/__ = ___% accurate implementation

Script Treatment Integrity

Behavior	Indicate if correct bx/topography was displayed

___/___ correct behaviors displayed = ___ % accuracy

Phase: Condition: Caregiver Pair:

APPENDIX I

TREATMENT ACCEPTABILITY RATING FORM- REVISED

Name: *Date:*

Using the following indicators, please select the number that best corresponds to your experience.

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

1. I find this approach to be an acceptable way of assessing my child's challenging behavior. 1   2   3   4   5
2. I would be willing for this procedure to be used again to assess my child's challenging behavior. 1   2   3   4   5
3. I believe it would be acceptable to use this assessment without my child's consent. 1   2   3   4   5
4. I like the procedures used in this assessment. 1   2   3   4   5
5. I believe this assessment is likely to be effective in identifying the factors that cause my child's challenging behavior. 1   2   3   4   5
6. I believe my child would experience discomfort during the assessment. 1   2   3   4   5
7. I believe the assessment is likely to result in permanent improvement in my child's challenging behavior. 1   2   3   4   5

8. I believe it would be acceptable to use this assessment with people who cannot choose assessments for themselves.

1   2   3   4   5

9. Overall I had a positive reaction to this assessment.

1   2   3   4   5