
HOW TO BEHAVE ETHICALLY IN A WORLD OF FADS

Kimberly A. Schreck* and Victoria A. Miller

Pennsylvania State University—Harrisburg, PA, USA

Although applied behavior analysis (ABA) has significant scientific support for treating people with autism spectrum disorders (ASDs), the field of autism treatment has been plagued with rapidly proliferating fad treatments subjecting people with ASD to various ineffective, pseudoscientific, and antiscientific treatments. To combat this, professionals must learn to make ethical treatment decisions, sometimes before research is conducted or published. Even when research is available negating fads, behavioral professionals must also overcome misperceptions about ABA. The purposes of this paper are to provide behavioral professionals with (a) a mechanism for making ethical treatment decisions (using sensory integration as an example) and (b) a method for responding to potential misperceptions and obstacles to using ABA. Copyright © 2010 John Wiley & Sons, Ltd.

INTRODUCTION

When seeking appropriate treatment for people with autism spectrum disorders (ASDs) professionals have a wide variety of options to choose from, including both validated and unvalidated treatments. Applied behavior analysis (ABA) has been extensively documented by researchers (Foxy, 2008; National Autism Center, 2009; Rosenwasser & Axelrod, 2001; Wolfe & Neisworth, 2005), national and state governments (National Institutes of Health, 1991; New York State Department of Health, 1999), and the US Surgeon General (U.S. Department of Health and Human Services, 1999) as the gold standard and most empirically validated of treatments for ASDs. Foxy (2008) reported that over 1000 scientific and peer-reviewed journal articles have shown successful outcomes for ASD using ABA technology. No other treatment for ASD has approached the positive results and standards of scientific rigor as ABA. Outcomes from controlled studies of fad therapies have not been as positive, with results from equivocal to blatantly ineffective to even harmful (Howard, Sparkman, Cohen, Green, & Stanislaw, 2005; Smith, Mruzek, & Mazingo, 2005). Despite the overwhelming scientific support and endorsement from government for

*Correspondence to: Kimberly A. Schreck, Penn State University—Harrisburg, W311 Olmsted Building, 777 W. Harrisburg Pike, Middletown, PA 17036, USA. E-mail: kas24@psu.edu

ABA, parents, and professionals have continued to utilize a variety of unsupported treatments for ASD (Goin-Kochel, Myers, & Mackintosh, 2007; Green, 2007; Hume, Bellini, & Pratt, 2005; Schreck & Mazur, 2008; Smith, 2005; Smith & Antolovich, 2000).

To help guide and protect behavioral professionals from using unvalidated or dangerous treatments, ethical guidelines and codes have been developed (American Psychological Association [APA, 2002]; Behavior Analyst Certification Board [BACB, 2004]). These guidelines state that behavioral psychologists and behavior analysts should: (a) Remain aware of scientific knowledge concerning treatments (APA and BACB); (b) choose treatments based on scientific knowledge (APA and BACB); (c) recommend scientifically supported and most effective treatment procedures (APA and BACB); (d) appraise likely effects of all alternative treatments (BACB); (e) describe specific objectives of treatment (BACB); and (f) uphold and advance behavior analysis to society (BACB), while still cooperating and reducing conflicts with other professionals (APA and BACB; see Table 1 for specific ethical codes). Although these guidelines exist, research has indicated that behavioral professionals have been experiencing difficulties balancing these ethical guidelines, as they have reported using a wide variety of unsupported treatments within their own practices (Schreck & Mazur, 2008).

One possible complication for behavioral professionals attempting to act ethically may be the rapid proliferation of alternative treatments (AltTs) for ASDs. Some of these novel AltTs are currently being researched or may use methods resembling ABA treatment techniques (e.g., Floortime; Positive Behavior Support). Such AltTs may have been initially compelling to professionals due to the resemblance of treatment components and objectives to ABA. However, without research their use remains unethical. For example, Floortime has used techniques similar to ABA (e.g., incidental teaching, shaping, and positive reinforcement) while instructing similar goals as ABA programs (e.g., increasing the child's interest in communication, creating opportunities for social interaction, building on the child's interests, individualizing interventions to the child, and setting up appropriate play

Table 1. Ethical standards related to treatment choice and use

| Area | BACB Code(s) | APA Code(s) |
|--|--------------|------------------|
| Remain aware of scientific knowledge | 1.01; 1.04 | 2.03 |
| Choose treatments based on scientific knowledge | 1.04; 2.09a | 2.04 |
| Recommend scientifically supported and effective treatment | 2.09a | 2.04 |
| Appraise likely effect of all alternative treatments | 2.09c | N/A |
| Describe specific objectives of treatment | 3.06a | N/A |
| Uphold and advance behavior analysis to society | 8.01; 10.01 | N/A |
| Cooperate and reduce conflicts with other professionals | 2.03b | 1.03; 1.04; 3.09 |

environments). However, Floortime has lacked sufficient empirical validation to justify ethical, widespread use (Metz, Mulick, & Butter, 2005).

Other unscientific and unsupported treatments that do not have objectives similar to ABA have been used by behavioral professionals. For example, 16.4% of Board Certified Behavior Analysts (BCBA) (Schreck & Mazur, 2008) have reported using sensory integration (SI), a 'popular' treatment for ¼ of children with developmental disabilities (Hoehn & Baumeister, 1994; Smith, 2005). At this time, no explanation has been proposed for why behavioral professionals have chosen to endorse and use non-ABA, unsupported AltTs. However, these choices may have occurred because behavioral professionals lack knowledge or training on how to scientifically evaluate rapidly proliferating AltT methods. Behavioral professionals may also have encountered intense pressures and obstacles against implementing pure or intensive ABA, thus agreeing to use a "buffet" treatment approach (Richdale & Schreck, 2008) that includes ABA diluted by other AltTs. The purposes of this paper are to provide behavioral professionals with (a) an ethical decision-making mechanism for preliminarily evaluating AltTs and (b) a method for responding to potential misperceptions and obstacles against implementing ABA. Since most behavior analysts are familiar with SI, we have used SI as an example to illustrate these processes.

ETHICAL DECISION-MAKING MECHANISM

How to Evaluate and Make Decisions about Alternative Treatments (AltTs) for ASD

With many new treatments for ASD materializing almost daily, behavioral professionals may find thoroughly investigating an AltT difficult. Thus, they may rely upon testimonials for AltTs from parents, authority figures, and professional societies (Vyse, 2005). However, to adhere to APA and BACB ethics guidelines (APA, 2002; BACB, 2004), behavioral professionals *must* investigate the *scientific knowledge* related to AltTs and analyze or predict the effects of a treatment while cooperating with other professionals (APA codes 1.03, 1.04, 2.04, 3.09; BACB codes 1.04, 2.03b, 2.09a)

Subsequently, remaining ethical necessitates that behavioral professionals acquire and analyze published literature. Although most Master's or Doctoral level behavioral professionals may be familiar with how to acquire published literature from professional journals, they may have differing levels of experience for evaluating research literature and determining if an AltT has research support. The first step in determining if a treatment has research support requires evaluating individual research articles about the treatment. Critical analysis of these individual articles

should include analysis of the sample characteristics, instrument or data collection techniques, procedures, and representation of the results (See Pyszczak, 2008 for specifics on how to analyze research articles).

Once the behavioral professional determines which manuscripts related to an AltT qualify as methodologically sound, they must evaluate if sufficient scientific knowledge exists to support the use of the AltT. Various paradigms for determining treatment efficacy have been reported by Chambless et al. (1996), Chambless and Hollon (1998), and Lonigan, Elbert, & Johnson (1998). Using these guidelines, behavioral professionals rank levels of treatment efficacy based upon the number of methodologically sound studies available. To obtain a ranking of well-established, a treatment must have at least two methodologically sound group studies conducted by independent research teams or 10+ single-subject design studies finding the AltT superior to no treatment or another treatment. The probably efficacious distinction is assigned to treatments if two well-designed group studies or more than three well-designed single-subject design studies, regardless of author, have been found to be superior to no intervention.

Since very few, if any, AltTs have cohesive research studies on entire treatment packages, behavioral professionals must also dissect independent components of the AltT for their analysis of research support. To assist with this analysis of AltTs, we have developed a decision-making flowchart for evaluating new AltTs along three treatment dimensions (See Figure 1). In Figure 1, we have used examples from SI as a model of how to use the chart to make a decision about an AltT along these three dimensions. Although we have chosen SI for an evaluation example, any treatment model can be inserted into the decision-making flowchart. The flow chart (i.e., treatment) should not even be tested if the behavioral professional perceives the treatment could cause possible harm. In this case immediately recommend a research supported alternative.

To begin, the behavioral professional must identify three basic components of the treatment: (a) the theoretical basis and assumptions of the treatment (i.e., the conceptual model from which the treatment originated. For example, did a treatment come from a medical, psychoanalytic, or developmental model?); (b) the treatment techniques used (i.e., 'methods' used within the specific treatment, such as reinforcement, brushing, joint compression, etc.); and (c) the treatment claims to analyze (i.e., supposed treatment effects or claims). Once the behavioral professional records the theory, techniques, and claims, they must determine which, if any, of these components have research support. Individual articles related to each component (i.e., treatment theory, techniques, and claims) should be critically analyzed for empirical merit and methodological soundness. Behavioral professionals must then determine if the number of methodologically sound articles indicates research support according to Chambless et al. (1996), Chambless and Hollon (1998), and Lonigan et al. (1998).

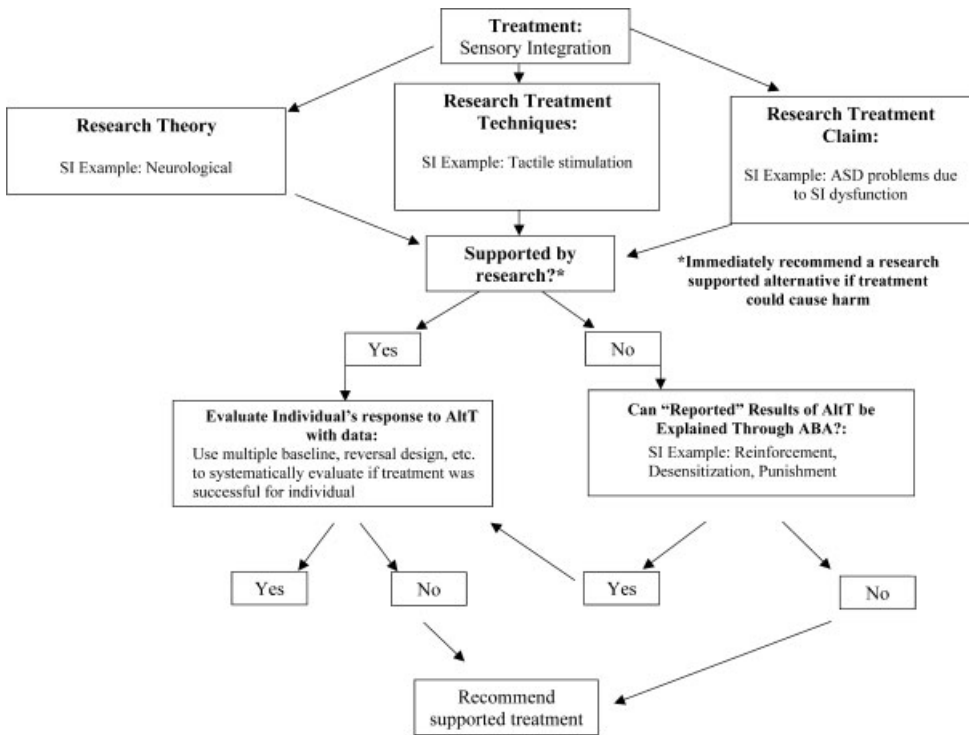


Figure 1. Ethical decision-making flowchart.

If Research Support Exists

Upon determination that empirical support exists for an AltT, behavioral professionals can scientifically evaluate an individual’s response to the treatment using ABA methodology (e.g., reversal and multiple baseline designs). If data indicate successful treatment, the AltT may be further utilized and evaluated. If the AltT does not alter behavior in the desired direction, a research supported alternative should be suggested.

If No or Partial Research Support Exist

If analysis of the treatment components indicates inadequate research support, the behavioral professional should determine if the anecdotal reports of the AltT’s theory, techniques, or claims can be explained behaviorally (e.g., by processes of reinforcement, punishment, and/or desensitization). If the behavioral professional determines a possible correspondence of an ABA supported treatment methodology with the AltT’s ‘technique’, the specific technique from the AltT can be evaluated

using an appropriate experimental design (multiple baseline, reversal, etc.) to determine treatment effectiveness. If desired behavior change occurs, the explicit element of that treatment may be further evaluated. If behavior change does not quickly occur, the behavioral professional should recommend a supported treatment for that behavior. Research supported treatment should also be immediately recommended if the behavioral professional fails to find a possible ABA correspondence or other research supported theoretical correspondence to the AltT technique.

Using the Ethical Decision-Making Mechanism: Sensory Integration

Following the general rules of the ethical decision-making flowchart, SI's theoretical basis, techniques, and claims were evaluated.

Theoretical Basis and Assumptions of Sensory Integration

Theoretical Basis and Assumptions: SI's basis on a physiological/medical explanation for autism symptoms guides SI proponents to claim that a person with an ASD's nervous system processing problems prohibit efficient learning, language acquisition, social skills, and behavior (Ayres, 1979).

Research Support: Pub Med and PsycInfo database searches revealed no research articles supporting the theoretical basis or assumptions of SI. Thus, following efficacy criteria (Chambless et al., 1996; Chambless & Hollon, 1998; Lonigan et al., 1998), the theoretical premise and assumptions of SI remain unsubstantiated by research (Green, 2007; Kay & Vyse, 2005). See Cummins (1991), Griffer (1999), Luiselli and Hurley (2005), Parham et al. (2007), Smith et al. (2005), Spirito (1999), and Yeaton (1982) for reviews of the treatment literature.

Specific Techniques being Used within Sensory Integration

Techniques: Procedures within the SI 'sensory diet' include deep pressure (e.g., body socks, weighted vests, blankets, hug machines), tactile stimulation (e.g., textured mitts, carpet squares), joint compression, sensory orientation activities (e.g., riding scooter boards, swinging on a swing or trapeze), gross motor and balance activities (e.g., bouncing on balls, balanceing on beams, catching, kicking, jumping on a trampoline), and arts and crafts activities (Ayres, 1979; Kay & Vyse, 2005). See Goldstein (2003), Metz et al. (2005), Parham et al. (2007), Posthuma (1983), Smith et al. (2005) for reviews of the treatment literature.

Research Support: Pub Med and PsycInfo database searches revealed no research articles that evaluated SI techniques or studies supporting their effectiveness. None of

these techniques have empirical support according to the aforementioned guidelines and have not been examined individually for efficacy. Because SI techniques were not empirically supported, we followed the flowchart rules and examined possible behavioral explanations for some supposedly 'successful' SI techniques.

Alternative Behavioral Explanations for Reports: SI techniques may appear effective at times, but these results may be explained behaviorally (Arendt, MacLean, & Baumeister, 1988; Smith et al., 2005). For example, the SI technique known as 'brushing' could be considered desensitization for a child with hypersensitivity to touch (see Paul, 1969, and Ventis, Higbee, & Murdock, 2001 for applications). Through repeated exposure to the brushing, the child's sensitivity may reduce and approximate a typical level. SI elements may also function as reinforcement (Arendt et al., 1988; Smith et al., 2005). A child may enjoy the nature of the SI activities (e.g., swinging and bouncing) and the attention that he receives from the therapist. SI may also be negatively reinforcing when children with ASDs escape from non-preferred tasks or environments. SI therapy can also punish both appropriate and inappropriate behaviors. Both types of behavior may stop because of their association with potentially aversive events such as nausea from spinning in a swing or the unpleasantness of being confined to a body sock. When promoters of SI claim that their treatment is producing beneficial results, those results may often have behavioral rather than sensory explanations.

Decision: If someone supporting SI advocates for implementing a specific SI element that may correspond to a supported ABA principle, the behavioral professional can choose to evaluate the individual's response to the technique with data. Using a single-subject research design to test an AltT's effectiveness, a 2-week trial (or shorter if drastic undesirable behavior occurs) can indicate whether a behavior is changing in the desired direction. However, due to lack of research support, a complete SI package is not recommended. An ABA treatment should be implemented instead.

Treatment Claims Made by the Proponents of SI

Claims: Supporters of SI attribute broad and nebulous benefits of the treatment including: (a) improved ability to focus; (b) reduction in aberrant behaviors; (c) enhancement of nervous system functioning, (d) organization of thoughts and emotions; (e) confidence; and (f) development of 'body awareness' (Ayres, 1979; Hoehn & Baumeister, 1994; Smith et al., 2005).

Research Support: The research conducted on SI lacks methodological soundness. Although SI may have face validity, Smith et al. (2005) assert that SI's alleged claims that it 'fixes' central underlying deficits cannot be scientifically proven wrong. SI's existing research has relied upon mentalistic and unobservable behaviors (Ayres,

1979; Hoehn & Baumeister, 1994; Posthuma, 1983; Smith et al., 2005). Thus, research articles cannot be used to determine efficacy (Chambless et al., 1996; Chambless & Hollon, 1998; Cummins, 1991; Green, 2007; Griffer, 1999; Hoehn & Baumeister, 1994; Lonigan et al., 1998).

Overall Decision

Initial evaluation of this AltT indicates that no scientific evidence exists to legitimize SI as a treatment package for people with ASDs. However, some SI techniques may be serving a behavioral function, such as positive reinforcement, negative reinforcement, or systematic desensitization for many children with autism. This possible relationship with research supported methods (i.e., ABA), may permit behavioral professionals to evaluate specific elements of SI. Components of an AltT that have a behavioral function (i.e., related behavioral research support) may have value in an ABA program if they can assist the individual in achieving important behavioral objectives.

POTENTIAL OBSTACLES AND MISPERCEPTIONS AGAINST IMPLEMENTING ABA

Even if behavioral professionals make sound clinical decisions based on our ethical decision-making mechanism, they must still convince others of the value and utility of their decisions and of ABA. Schools, residential and treatment facilities' administrations, and/or parents of children with ASDs sometimes can be insistent upon the use of an AltT despite lack of research support. The argument that an AltT does not have scientific support frequently does not alter this insistence. Advocates of the AltT will frequently cite a variety of reasons for being opposed to ABA in addition to their support for the AltT. In our practice, many times this insistence for using AltTs is based upon faulty arguments developed from misperceptions of ABA. Behavioral professionals must dispute these misperceptions. However, many behavioral professionals may not have sufficient exposure to the evidence supporting the counter-arguments to these misperceptions. Consequently, we have provided evidence for counter-arguments for several of the more common criticisms or misperceptions of ABA (See Table 2 for a concise guide and references).

Misperception #1: ABA is a Rigid and Mechanistic Treatment

Opponents of ABA commonly argue that behavioral professionals' predominant intention involves controlling people, not social-emotional development.

General Counter-Argument: Behavioral professionals can respond to this argument with a variety of responses emphasizing (a) the social validity of ABA approaches (Foxx, 2008; Wolf, 1978); (b) the range of adaptive and social skills taught with ABA (Foxx, 2008; Rosenwasser & Axelrod, 2001); (c) the profit that supporters of AltTs make propagating this argument (Foxx, 2008; Smith, 2005); (d) the individualization of programs in ABA (Cooper, Heron, & Heward, 2007; Foxx, 2008; Rosenwasser & Axelrod, 2001); or (e) offer training to educate others about the science of ABA.

Misperception #2: ABA Uses Punishment/AltT Uses Only Positive Approaches

General Counter-Argument: Behavioral professionals emphasize the liberal use of positive reinforcement in ABA (Foxx, 2008). See Luiselli and Hurley (2005) and Foxx (2008) for numerous ABA strategies excluding punishment. Additionally, ABA follows the least restrictive treatment model, using the least intrusive but most effective procedures possible (Foxx, 2008; Repp & Singh, 1990). Behavioral professionals use punishment only as a last resort after other, non-aversive methods have been attempted and failed or with severe behavior (i.e., life-threatening self-injurious behavior; Foxx, 2008).

Counter-Argument Specific to AltT's: Advocates of AltTs typically fail to conduct assessments to determine if an AltT punishes behavior. For example, AltT elements (e.g., SI activities such as spinning in a tire swing or being confined to a body sock) may decrease children's behavior due to the aversiveness of the AltT element.

Misperception #3: ABA is Costly and Labor-Intensive/AltT is Cheap and Easy

General Counter-Argument: The cost of any intervention must be measured against its effectiveness (Posthuma, 1983). ABA initially may cost more money than AltTs (Chasson, Harris, & Neely, 2007; Jacobson, Mulick, & Green, 1998). However, ABA's long-term treatment efficacy and cost-effectiveness compels behavioral professionals to recommend ABA (Chasson et al., 2007; Foxx, 2008; Jacobson et al., 1998).

Counter-Argument Specific to AltT: The convenience of short treatment sessions in environments such as schools may persuade people to choose AltTs. For instance, educational settings typically provide SI for one to three times per week for a period of 1 hour (Green, 2007; Smith et al., 2005), making SI very appealing to busy caregivers and staff.

Despite the seemingly practical feature of many AltTs, a crucial measure of treatment value remains missing—proven effectiveness.

Misperception #4: All Children with ASDs Should Receive the Same Treatment

General Counter-Argument: The highly individualized aspect of ABA treatment (Cooper et al., 2007; Foxx, 2008) accounts for the tremendous diversity for people with ASDs. ABA recognizes the divergent causes for behavior from differing environments, functions, and reinforcer schedules, to medical origins.

Counter-Argument Specific to AltTs: ABA professionals do not make assumptions about children with autism and let assessment determine the specific treatments that will be used. Practitioners of many other therapies, such as SI, assume that all children with autism have sensory processing problems.

Misperception #5: AltTs are Harmless, so why not Try Them?

Counter-Argument: Many AltT supporters pose this question to potential consumers. The type of thinking characterized by the ‘Why not?’ attitude can lead to the ‘buffet approach’ to autism treatment (Richdale & Schreck, 2008). The buffet approach erroneously reassures parents and professionals that by using various treatment elements the person with an ASD receives a comprehensive and effective treatment package (Foxx, 2008; Howard et al., 2005; Smith, 2005). An abundance of research already demonstrates that ABA remains the most consistently effective approach for the treatment of ASDs (Foxx, 2008; Green, 2007; Rosenwasser & Axelrod, 2001; Richdale & Schreck, 2008; Wolfe & Neisworth, 2005).

Misperception #6: Many Consumers of AltTs have Reported Successful Results

General Counter-Argument: Testimonials and other forms of unreliable and unregulated assessments (e.g., surveys, case studies, etc.) abound within the realm of unproven treatments for ASDs, especially with the advent of the internet. Although consumer evaluations remain important for social validity, investment of time and money may bias consumers toward AltT effectiveness (Green, 2007; Smith, 2005; Wolf, 1978). However, the lack of scientific rigor and the impossibility of proving subjective, un-testable AltT elements (Wolf, 1978) negates most of these sources of AltT information. Unlike many AltTs, ABA clearly defines and measures behaviors allowing for assessment of treatment effectiveness.

Misperception #7: AltTs Long-term Existence Supports its Effectiveness

Counter-Argument: Longevity of any treatment does not qualify as research support or proof of its effectiveness. Proponents of this viewpoint typically rely upon the previously mentioned un-scientific ‘research’ to support assertions of an AltT’s effectiveness (See Cummins, 1991; Goldstein, 2003; Griffer, 1999; Hoehn & Baumeister, 1994; Metz et al., 2005; Parham et al., 2007; and Posthuma, 1983 for examples pertinent to SI.). In fact when researchers scientifically test AltTs (e.g., SI), the treatments are often proven ineffective (See Smith et al., 2005; Metz et al., 2005; Goldstein, 2003 for examples of objective research on SI).

Additionally, AltTs tend to mutate over-time with increasingly haphazard applications used as a panacea for an increasingly wide - range of problems. These mutations add to the AltT’s longevity. Unlike AltTs, ABA’s mutations to a wide range of populations and behavior problems have been scientifically supported.

Table 2. Obstacles and misperceptions to implementing ABA and counter-arguments.

| Misperceptions | Counter-Arguments | References for counter-arguments |
|------------------------|---|--|
| 1. Rigid & Mechanistic | (a) Social validity emphasized | (a) Foxx (2008) Wolf (1978) |
| | (b) Range of adaptive and social skills taught | (b) Foxx (2008) Rosenwasser and Axelrod (2001) |
| | (c) Critics benefit from other interventions | (c) Foxx (2008) Smith (2005) |
| | (d) ABA programs individualized | (d) Cooper et al. (2007) Foxx (2008) Rosenwasser and Axelrod (2001) |
| 2. Punishment-oriented | (a) Reinforcement preferred | (a) Foxx (2008) |
| | (b) Alternatives to punishment | (b) Foxx (2008) Luiselli and Hurley (2005) |
| | (c) ABA follows Least Restrictive model | (c) Foxx (2008) Repp and Singh (1990) |
| | (d) Used as last resort/for severe behavior | (d) Foxx (2008) |
| | (e) AltT techniques punishing | (e) Smith et al. (2005) |
| 3. Costly | (a) Cheaper treatment not necessarily effective | (a) Foxx (2008) Posthuma (1983) |
| | (b) Unethical if only consideration | (b) Foxx (2008) |
| | (c) ABA difficult but worthwhile | (c) Green (2007) Schreck and Mazur (2008) |
| | (d) ABA most cost-effective treatment for ASD | (d) Chasson et al. (2007) Howard et al. (2005) Foxx (2008) Jacobson et al. (1998) |

(Continues)

Table 2. (Continued)

| Misperceptions | Counter-Arguments | References for counter-arguments |
|--------------------------|---|---|
| 4. Homogenous Treatment | (a) Autism a very diverse group (b) ABA programs individualized | (a) Smith et al. (2005) (b) Cooper et al. (2007) Foxx (2008) Rosenwasser and Axelrod (2001) |
| 5. Why not? | (a) Education about effectiveness of AltT (b) ABA already proven treatment (c) Can lead to 'buffet approach' (d) Available AltT research weak | (a) Goldstein (2003) (b) Foxx (2008) Green (2007) Rosenwasser and Axelrod (2001) Wolfe and Neisworth (2005) (c) Foxx (2008) Howard et al. (2005) Richdale & Schreck (2008) Smith (2005) (d) Green (2007) Griffer (1999) Hoehn and Baumeister (1994) NY State Department of Health (1999) Parham et al. (2007) |
| 6. AltT Research Support | (a) Rely primarily on subjective measures (b) Subjective measures lack testability (c) Objective measures indicate no gains/negative findings (d) No distinction between high and low quality research (e) AltT literature rife with methodological flaws | (a) Green (2007) Griffer (1999) Posthuma (1983) Wolfe and Neisworth (2005) Yeaton (1982) (b) Wolf (1978) (c) Cummins (1991) Green (2007) Griffer (1999) Hoehn and Baumeister (1994) Metz et al. (2005) Parham et al. (2007) Smith (2005) Wolf (1978) (d) Smith (2005) (e) Cummins (1991) Goldstein (2003) Griffer (1999) Hoehn and Baumeister (1994) Metz et al. (2005) Parham et al. (2007) Posthuma (1983) |

DISCUSSION

When encountering the rapid proliferation of AltTs and their staunch proponents, behavioral professionals must adhere to their ethical codes and guidelines related to choosing and recommending treatments (e.g., decisions based upon scientific knowledge), while still cooperating and reducing conflicts with other professionals who may recommend AltTs. Of course, we are assuming that behavioral professionals are initially and primarily recommending the research-supported ABA treatments for children with autism. However, behavioral professionals must contend with the ever-present pressures to incorporate the buffet approach (Richdale & Schreck, 2008) to autism treatment. Adherence to ethical codes and guidelines may be difficult when behavioral professionals inevitably encounter the many misperceptions about ABA and AltT's, such as the 'Why Not' mentality, the reliance on un-scientific testimonials as 'proof', and the cost of ABA. Additionally, many behavioral professionals may not have exposure to specific methods or guidelines for determining the scientific support of an AltT. To assist behavioral professionals in the process of disputing misperceptions of ABA and AltTs and making ethical decisions about AltT's use, we have provided a basic ethical decision-making guideline and counter-arguments for common misperceptions. The parameters of the decision-making guideline instruct behavioral professionals to seek and analyze scientific literature related to the (a) theoretical foundations, (b) specific treatment techniques, and (c) treatment claims of an AltT.

After analysis of the literature for methodological soundness, behavioral professionals must implement treatment efficacy guidelines to determine if each aspect of the AltT has research support (Chambless et al., 1996; Chambless & Hollon, 1998; Lonigan et al., 1998). If any aspect of the AltT has research support, the behavioral professional may scientifically evaluate its effectiveness on an individualized basis. If not, the specific treatment elements must be analyzed for any correspondence to research supported techniques. If a correspondence may exist, the specific AltT element may be scientifically evaluated. However, if no component of the AltT has research support or if the AltT has potential for harm, the behavioral professional should immediately recommend a research supported treatment.

Although a behavioral professional may make an ethical treatment decision, cooperating and reducing conflict with a staunch supporter (e.g., professional or parent) of an AltT often still proves difficult. This paper provides behavioral professionals with the most standard arguments and misperceptions about ABA and AltTs. We provide behavioral professionals with general counter-arguments and AltT specific counter-arguments to assist them in disputing these claims; and thus, obtaining supported treatments for their clients.

We chose to evaluate SI with the decision-making guideline because of its current popularity for children with ASDs (Smith, 2005) and its reported use by behavioral professionals (Schreck & Mazur, 2008). Following the decision making guidelines developed for this paper and treatment efficacy guidelines, we conclude that SI as a treatment package lacks sufficient scientific support for ethical use. However, because some aspects of SI may mimic functions of supported ABA techniques (e.g., swinging = reinforcement), scientific evaluation of elements of SI with particular individuals may be ethical.

Although we only evaluated one AltT, any AltT can be evaluated using this decision-making mechanism. The decision-making flowchart provides an objective, data-based approach that eliminates the guesswork so often involved in making treatment decisions for children on the autism spectrum, especially for the rapidly proliferating AltTs in autism. Conclusions reached using the flowchart result in informed and data-based decisions about the use of AltTs for children with ASDs. For some treatments for people with autism, extensive literature reviews and chapters may exist that already evaluate treatment effectiveness or ineffectiveness (e.g., facilitated communication). In some instances evaluation of these manuscripts provides sufficient evidence and *replication* of efficacy decisions to provide behavioral professionals with sufficient confidence to make treatment recommendations (See Jacobson, Foxx, & Mulick, 2005). These replicated reviews for efficacy decisions are quite important considering the dangers of trusting information from secondary sources (e.g., misinterpretation of results; neglecting specific aspects of treatment methodologies, etc.).

Unfortunately, AltTs in autism appear so rapidly that replicated research reviews typically are not available to make confident decisions regarding treatment efficacy. Thus, behavioral professionals must be able to read, understand, and evaluate primary research literature as we have suggested in our decision-making mechanism. However, since behavioral professionals may not be fluent in all research methodologies or treatment areas (e.g., pharmacology), they should refrain from using the decision-making mechanism or making recommendations for treatments in areas outside of their area of expertise and ability to understand the related research literature.

Our choice to use treatment efficacy criteria from the 1990s (i.e., Chambless et al., 1996; Chambless & Hollon, 1998; Chambless & Ollendick, 2001; Lonigan et al., 1998) to assist behavioral professionals in making these ethical evaluations of research literature related to treatments may be seen as antiquated. Task Forces and review articles (e.g., American Psychological Association Presidential Task Force, 2006; Dunst & Trivette, 2009; LaGreca, Silverman, & Lochman, 2009; Newnham & Page, 2010) have mentioned a variety of methods for determining evidence-based practice from clinical judgment to individual patient responses to treatments, none seem to have concentrated on basic scientific guidelines for evaluating specific treatment effectiveness

research (i.e., Chambless et al., 1996; Chambless & Hollon, 1998; Chambless & Ollendick, 2001; Lonigan et al., 1998). Thus, we chose to develop our decision-making mechanism using data-based approaches to determining treatment efficacy (i.e., Chambless et al., 1996; Chambless & Hollon, 1998; Lonigan et al., 1998).

Although the decision-making mechanism relies primarily on the evaluation of research literature, we have included the component of the newer guidelines that evaluates an individual's specific response to treatment. Since behavioral professionals operate within the framework of the scientific approach (Cooper et al., 2007), our profession provides the unique ability to test individual's unique responses to customized treatments (i.e., individualized reinforcer use and measurement using objective single subject design methodology). Our very specific, objective methodology to measure patient treatment progress (i.e., single subject design methodology) precludes the 'clinical judgment' component of newer decision guidelines by providing objective evidence of progress. Thus, as a profession, we should not base treatment effectiveness on judgment as newer guidelines suggest, but rather on data and evidence (both from primary research and from evaluation of individual's responses as suggested in our decision-making mechanism).

If behavioral professionals fail to use objective processes, such as this ethical decision-making mechanism, an incalculable number of children may continue to receive the 'buffet approach' (Richdale & Schreck, 2008) to autism treatment (See Schreck & Mazur, 2008). The use of the buffet of AltTs wastes valuable time, financial resources, and energy. More importantly, the buffet precludes progress children receive with scientifically validated treatment, such as ABA. In addition to the potential harm for individual children, the use of unsupported AltTs places individual behavioral professionals at risk for ethical violations.

REFERENCES

- American Psychological Association. (2002). Ethical principles of psychologists and code of conduct. *American Psychologist*, 57(12), 1060–1073.
- American Psychological Association APA Presidential Task Force on Evidence-Based Practice. (2006). Evidence-Based practice in psychology. *American Psychologist*, 61, 271–285.
- Arendt, R. E., MacLean, W. E., & Baumeister, A. A. (1988). Critique of sensory integration and its application in mental retardation. *American Journal on Mental Retardation*, 92(5), 401–411.
- Ayres, A. J. (1979). *Sensory integration and the child*. Los Angeles: Western Psychological Services.
- Behavior Analyst Certification Board. (2004). BACB guidelines for responsible conduct. Retrieved November 11, 2009 from <http://www.bacb.com/pages/conduct.html>
- Chambless, D. L., & Hollon, S. D. (1998). Defining empirically supported therapies. *Journal of Consulting and Clinical Psychology*, 60(1), 7–18.
- Chambless, D. L., & Ollendick, T. H. (2001). Empirically supported psychological interventions: Controversies and evidence. *Annual Review of Psychology*, 52, 685–716.

- Chambless, D. L., Sanderson, W. C., Shoham, V., Bennett Johnson, S., Pope, K. S., Crits-Christoph, P., et al. (1996). An update on empirically supported validated therapies. *Clinical Psychologist*, 49, 5–18.
- Chasson, G. S., Harris, G. E., & Neely, W. J. (2007). Cost comparison of early intensive behavioral intervention and special education for children with autism. *Journal of Child and Family Studies*, 16(3), 401–413.
- Cooper, J. O., Heron, T. E., & Heward, W. L. (2007). *Applied behavior analysis* (2nd ed.). Upper Saddle River, NJ: Pearson.
- Cummins, R. A. (1991). Sensory integration and learning disabilities: Ayres' factor analyses reappraised. *Journal of Learning Disabilities*, 24(3), 160–168.
- Dunst, C. J., & Trivette, C. M. (2009). Using research evidence to inform and evaluate early childhood intervention practices. *Topics in Early Childhood Special Education*, 29, 40–52.
- Foxx, R. M. (2008). Applied behavior analysis treatment of autism: The state of the art. *Child and Adolescent Psychiatric Clinics of North America*, 17(4), 821–834.
- Goldstein, H. (2003). Response to Edelson, Rimland, and Grandin's commentary. *Journal of Autism and Developmental Disorders*, 33(5), 553–555.
- Goin-Kochel, R. P., Myers, B. J., & Mackintosh, V. H. (2007). Parental reports on the use of treatments and therapies for children with autism spectrum disorders. *Research in Autism Spectrum Disorders*, 1, 195–209.
- Green, V. A. (2007). Parental experience with treatments for autism. *Journal of Developmental and Physical Disabilities*, 19(2), 91–101.
- Griffer, M. R. (1999). Is sensory integration effective for children with language-learning disorders? A critical review of the evidence. *Language, Speech, and Hearing Services in Schools*, 30(4), 393–400.
- Hoehn, T. P., & Baumeister, A. A. (1994). A critique of the application of sensory integration therapy to children with learning disabilities. *Journal of Learning Disabilities*, 27(6), 338–350.
- Howard, J. S., Sparkman, C. R., Cohen, H. G., Green, G., & Stanislaw, H. (2005). A comparison of intensive behavior analytic and eclectic treatments for young children with autism. *Research in Developmental Disabilities*, 26(4), 359–383.
- Hume, K., Bellini, S., & Pratt, C. (2005). The usage and perceived outcomes of early intervention and early childhood programs for young children with autism spectrum disorder. *Topics in Early Childhood Special Education*, 25, 195–207.
- Jacobson, J. W., Foxx, R. M., & Mulick, J. A. (2005). *Controversial therapies for developmental disabilities: Fad, fashion, and science in professional practice*. Mahwah, New Jersey: Lawrence Erlbaum Associates.
- Jacobson, J. W., Mulick, J. A., & Green, G. (1998). Cost-benefit estimates for early intensive behavioral intervention for young children with autism—General model and single state case. *Behavioral Interventions*, 13(4), 201–226.
- Kay, S., & Vyse, S. (2005). Helping parents separate the wheat from the chaff: Putting autism treatments to the test. In J. W. Jacobson, R. M. Foxx, & J. A. Mulick (Eds.), *Controversial therapies for developmental disabilities: fad, fashion and science in professional practice* (pp. 265–277). Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers.
- LaGreca, A. M., Silverman, W. K., & Lochman, J. E. (2009). Moving beyond efficacy and effectiveness in child and adolescent intervention research. *Journal of Consulting and Clinical Psychology*, 77, 373–382.
- Lonigan, C. J., Elbert, J. C., & Johnson, S. B. (1998). Empirically supported psychosocial interventions for children: An overview. *Journal of Clinical Child Psychology*, 27(2), 138–145.

- Luiselli, J. K., & Hurley, A. D. (2005). The significance of applied behavior analysis in the treatment of individuals with autism spectrum disorders (ASD). *Mental Health Aspects of Developmental Disabilities*, 8(4), 128–130.
- Metz, B., Mulick, J. A., & Butter, E. M. (2005). Autism: A late-20th-century fad magnet. In J. W. Jacobson, R. M. Foxx, & J. A. Mulick (Eds.), *Controversial therapies for developmental disabilities: Fad, fashion and science in professional practice* (pp. 237–263). Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers.
- National Autism Center. (2009). *National standards report: National standards project – addressing the need for evidence-based practice guidelines for autism spectrum disorders*. Randolph, MA: National Autism Center.
- National Institutes of Health. (1991). *Treatment of destructive behaviors in persons with developmental disabilities*. Washington, DC: NIH Consensus Developmental Conference. U.S. Department of Health and Human Services.
- Newnham, E. A., & Page, A. C. (2010). Bridging the gap between best evidence and best practice in mental health. *Clinical Psychological Review*, 30, 127–142.
- New York State Department of Health, Early Intervention Program. (1999). *Clinical practice guidelines: Autism/pervasive developmental disorders, assessment, and intervention for young children (ages 0–3 years)*. Albany (NY).
- Parham, L. D., Conn, E. S., Spitzer, S., Koomar, J. A., Miller, L. J., Burke, J. P., et al. (2007). Fidelity in sensory integration intervention research. *American Journal of Occupational Therapy*, 61(2), 216–227.
- Paul, G. L. (1969). Outcome of systematic desensitization: II. Controlled investigations of individual treatment, technique variations, and current status. In C. M. Franks (Ed.), *Behavior therapy: appraisal and status*. New York: McGraw-Hill.
- Posthuma, B. W. (1983). Sensory integration: Fact or fad. *The American Journal of Occupational Therapy*, 37(5), 343–345.
- Pyrzczak, F. (2008). *Evaluating research in academic journals: A practical guide to realistic evaluation* (4th ed.). Glendale, CA: Pyrczak Publishing.
- Repp, A. C. & Singh N. N. (Eds.), (1990). *Perspectives on the use of nonaversive and aversive interventions for persons with developmental disabilities*. Sycamore, IL: Sycamore.
- Richdale, A., & Schreck, K. A. (2008). A history of assessment and intervention in autism. In J. Matson (Ed.), *Clinical assessment and intervention for autism* (pp. 3–32). New York: Elsevier.
- Rosenwasser, B., & Axelrod, S. (2001). The contributions of applied behavior analysis to the education of people with autism. *Behavior Modification*, 25(5), 671–677.
- Schreck, K. A., & Mazur, A. (2008). Behavior analyst use of and beliefs in treatments for people with autism. *Behavioral Interventions*, 23(3), 201–212.
- Smith, T. (2005). The appeal of unvalidated treatments. In J. W. Jacobson, R. M. Foxx, & J. A. Mulick (Eds.), *Controversial therapies for developmental disabilities: Fad, fashion and science in professional practice* (pp. 45–57). Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers.
- Smith, T., & Antolovich, M. (2000). Parental perceptions of supplemental interventions received by young children with autism in intensive behavior analytic treatment. *Behavioral Interventions*, 15, 83–97.
- Smith, T., Mruzek, D. W., & Mozingo, D. (2005). Sensory integrative therapy. In J. W. Jacobson, R. M. Foxx, & J. A. Mulick (Eds.), *Controversial therapies for developmental disabilities: Fad, fashion and science in professional practice* (pp. 331–350). Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers.

- Spirito, A. (1999). Introduction to special series on empirically supported treatments in pediatric psychology. *Journal of Pediatric Psychology, 24*, 87–90.
- U.S. Department of Health and Human Services. (1999). Mental Health: A Report of the Surgeon General. Retrieved 30 March 2009 from <http://www.surgeongeneral.gov/library/mentalhealth/chapter3/sec6.html>
- Ventis, W. L., Higbee, G., & Murdock, S. A. (2001). Using humor in systematic desensitization to reduce fear. *Journal of General Psychology, 128*, 241–253.
- Vyse, S. (2005). Where do fads come from? In J. W. Jacobson, R. M. Foxx, & J. A. Mulick (Eds.), *Controversial therapies for developmental disabilities: Fad, fashion and science in professional practice* (pp. 3–17). Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers.
- Wolf, M. M. (1978). Social validity: The case for subjective measurement or how applied behavior analysis is finding its heart. *Journal of Applied Behavior Analysis, 11*(2), 203–214.
- Wolfe, P., & Neisworth, J. T. (2005). Autism and applied behavior analysis. *Exceptionality, 13*(1), 1–2.
- Yeaton, W. H. (1982). A critique of the effectiveness of applied behavior analysis research. *Advances in Behaviour Research and Therapy, 4*(2), 75–96.