Research in Autism Spectrum Disorders 54 (2018) 21–26

Contents lists available at ScienceDirect

Research in Autism Spectrum Disorders

journal homepage: www.elsevier.com/locate/rasd

Brief Report

Evaluation of an online training program to improve family routines, parental well-being, and the behavior of children with autism

Jordan Pennefather[a,*], Meme Hieneman[b], Tracy J. Raulston[a,c], Nell Caraway[a]

[a] IRIS Educational Media, 1203 Willamette Street, Eugene OR, 97401, United States
[b] Positive Behavior Support Applications, 3558 Shoreline Circle, Palm Harbor, FL, 34684, United States
[c] The Pennsylvania State University, 125 Cedar Building, University Park, PA, 16802, United States

ARTICLE INFO

Number of review completed is 2

Keywords:
Autism spectrum disorder
Parent training
Applied behavior analysis
Acceptance and commitment training
Online training

ABSTRACT

Background: Parents of children with autism spectrum disorder (ASD) are at an increased risk for stress, and their children often display high rates of problem behavior. There is a robust literature base showing that training parents to implement applied behavior analytic (ABA) interventions helps reduce their child's challenging behavior. However, some parents continue to report high rates of stress that may interfere with implementation. Adding cognitive-affective strategies such as ACT and optimism training to ABA may be beneficial. Telehealth models have the potential to reach parents who may not otherwise be able to access parent training, making evidence-based programs more readily available.

Method: Twenty-three parents (with 16 completing posttest assessments) of children with autism (ages four to eight) participated in a three-week online training program. Topics covered included instruction in ABA principles as well as stress reduction strategies and mediation practice based on ACT principles. The intervention included weekly synchronous online meetings with other parents and two parent educators, as well as supplemental assignments completed between sessions.

Results: We found that after the intervention parents reported: (1) decreases in parental stress, (2) increases in relevant knowledge, (3) increases in child prosocial behavior, (4) decreases in hyperactive behaviors, and (5) high levels of satisfaction with the intervention.

Conclusions: This online program, combining ABA and stress reduction practices, resulted in positive outcomes for children with autism and their families. Although this was a small sample size, this early investigation offers promise for delivering this combined intervention approach effectively online. Training small groups of parents in an online format may be a feasible, efficient service delivery method.

It is estimated that 1 in 68 children will be diagnosed with autism spectrum disorder (ASD) (Center for Disease Control & Prevention, 2014). Children with ASD experience significant social and communication deficits (American Psychiatric Association, 2013) that are associated with behavioral challenges such as aggression, severe noncompliance, tantrums, self-injury, and elopement (Baghdali, Pascal, Grisi, & Aussilloux, 2003; Hartle, y, Sikora, & McCoy, 2008; Kanne & Mazurek, 2011). Problem behavior, left unchecked, can negatively impact children's psychosocial, emotional, and physical health (Kuhlthau et al., 2011). It can also be damaging for families. Parents of children with ASD report higher levels of stress than parents of typically-developing children

* Corresponding author.
E-mail address: JordanP@Trifoia.com (J. Pennefather).

https://doi.org/10.1016/j.rasd.2018.06.006
Received 13 September 2017; Received in revised form 11 June 2018; Accepted 15 June 2018

(Schieve, Blumberg, Rice, Visser, & Boyle, 2007) and children with other disabilities (Eisenhower, Baker, & Blacher, 2005). Further, the relationship between parental stress and child problem behavior appears to be bidirectional, (Neece, Green, & Baker, 2012). Stress can undermine a parent's ability to participate fully in intervention and implement strategies as designed, and therefore reduce the positive outcomes for their children (Head & Abbeduto, 2007).

Interventions based in the principles of applied behavior analysis (ABA) have been demonstrated to be extremely effective in remediating behavioral challenges for children with ASD (National Autism Center, 2015). These interventions have typically been delivered via individualized, often intensive, in-home or clinic-based therapy with the children (Eikeseth, Smith, Jahr, & Eldevik, 2007; Howling, Magiati, & Charman, 2009) and behavioral parent training (Matson, Mahan, & Matson, 2009). Unfortunately, there are barriers to ABA therapy. Individualized intervention is expensive and difficult to obtain due to a shortage of providers (Behavior Analyst Certification Board, 2015). Many families living in rural settings cannot access services (Koegel, Symon, & Koegel, 2002; Terry, 2009) and long wait lists are the norm (Wacker et al., 2013). Intervention programs are utilizing telehealth technologies to reach more families and reduce transportation time and costs for therapists (Lindgren et al., 2016; Wacker et al., 2013).

Attrition in behavioral parent training is high, with estimates of 40–60% of parents not finishing programs (Chacko et al., 2016). This may be for a number of reasons. Basic behavioral concepts and the related strategies may be difficult for parents to apply and maintain in natural settings given the demands of families' lives (McConnell, Parakkal, Savage, & Rempel, 2015). Traditional therapist-directed behavioral services may therefore increase, rather than decrease, family stress (Hastings & Beck, 2004). Given these concerns, recommended practice guidelines in early, home-based behavioral intervention for children with autism and other disabilities now emphasize building parents' capacity to support their children's behavior within the context of daily life (Division for Early Childhood, 2014).

Effective behavioral support is characterized by comprehensive, function-based strategies that fit within natural routines and are designed not only to improve behavior, but quality of life as well (Carr et al., 2002). The elements of plans should include implementing proactive strategies to prevent problems and prompt positive behavior, teaching replacement skills and other desired behaviors, and managing contingencies so that reinforcement is delivered only following positive behavior. Numerous studies have evaluated such behavioral interventions in families and found comprehensive, function and routine-based intervention to be effective (Dunlap et al., 2006; Fettig & Barton, 2014; Lucyshyn et al., 2015) and likely more sustainable than less-contextualized interventions.

Even when parents receive appropriate, contextualized behavioral parent training, stress can make it difficult for them to participate fully and follow through with interventions (Neece et al., 2012). As a result, there is increasing recognition that parents need "adjunctive supports", often offered in the form of loosely structured support groups or counseling (Boyd, 2002; Kazdin, 2005). Researchers have also begun integrating cognitive-behavioral and mindfulness-based stress reduction practices such as Acceptance and Commitment Training (ACT; Blackledge & Hayes, 2006) and optimism training (Durand, Hieneman, Clarke, Wang, & Rinaldi, 2013) into behavioral parent training. By doing so, parents learn not only behavioral principles and practices, but also how to recognize the thoughts and feelings they are experiencing and their impact on their actions, as well as how to remain more present and positive when facing difficult behavior so that they can follow through with interventions.

ACT has been successfully applied in samples of parents of children with ASD, showing reductions in depression and distress and increases in psychological flexibility (Blackledge & Hayes, 2006), as well as increases in values-directed behaviors (e.g., engaging in self-care activities) (Gould, Tarbox, & Coyne, 2017). In the study by Durand et al. (2013), parents and children in both groups experienced improvements in child behavior within targeted routines and parental self-efficacy, but the inclusion of optimism training produced more generalized changes in child behavior. Combining ABA with cognitive-affective approaches offer significant promise, but programs evaluated to date have been time-consuming (e.g., 10 weeks in duration), reducing their practicality for already challenged families.

Ready access to trained clinicians and content that integrates these evidence-based practices continue to be a problem. Telehealth, which is now being used as a delivery method in behavioral intervention, offers a flexible and effective alternative to home or clinic-based services (Machalicek et al., 2016; Wacker et al., 2013). Online training programs create a mechanism for sharing information and structuring interventions and allow participants flexible access as needed. Evidence-based practices and clinical support may be available during times that are convenient for parents and within their own home, increasing their ability to participate.

In this pilot investigation, we evaluated a program in which small groups of parents (2–4 parents per group) attended three online meetings led by two parent educators. Parents also had access to a Google + Community site where videos, audios, interactive forms and resource links provided information on ABA, ACT, and optimism training. Our research question was: is a telehealth model that brings parents and parent educators together via social media and video-chat software (such as Google+ Hangouts and Communities), a feasible, usable, and socially valid method of delivering effective instruction and support to parents on the topics of child behavior, building family routines, and stress reduction?

We hypothesized that participants completing the *Autism Parent Training* (*APT)* would (a) exhibit changes in pre-post measures of reported child behaviors, (b) exhibit decreases in stress, (c) exhibit increases in knowledge about ABA practices, and (d) report high levels of consumer satisfaction and usability.

1. Method

We evaluated the feasibility, usability, and acceptance of *APT* pilot study, using a within-subjects repeated measures pre- and post-training study design over a three-week intervention period. This design evaluated the potential for efficacy for preliminary prototypes (Gall, Gall, & Borg, 2007; Shadish, Cook, & Leviton, 1991) by examining changes in user outcomes including child behaviors, parental stress, and knowledge.