ASD Parent Trainer: Online Coaching for Parents of Children With Autism

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Study Protocol and Analysis Plan

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We employed a mixed-model repeated measures, randomized group design to evaluate the PR and TR programs, examining changes over time both within and across the programs, assessing whether there were improvements in each program. All research was conducted online. Participants were recruited nationally. Eligible parents had to (a) have access to necessary technology (i.e., computer with camera and microphone, high-speed Internet connection, and a mobile device with current operating system) and (b) speak English. Parents had to have at least one child who (a) had a medical diagnosis or special educational eligibility of ASD, (b) was between 3 – 8 years old, (c) lived in the home of the participating parent, and (d) engaged in challenging behavior that interfered with at least one family routine. Eligible participants completed informed consent online. Parents were assigned to either the PR or TR condition using block randomization.

Measures

To evaluate changes over time both within and between programs, we assessed family quality of life; parenting stress, behaviors, and knowledge; and child behavior (adaptive and maladaptive) using parent report measures. Additionally, at T3 we examined parents use of and satisfaction with the programs. The measures described in the following sections were used.

Quality of Life. The Family Quality of Life survey (FQOL; Summers et al., 2005) is a 25-item measure for families raising a child with intellectual or developmental disabilities. The measure includes domains of parenting, emotional well-being, physical/material well-being, and disability-related supports using a 5-point scale with responses ranging from (1) very dissatisfied to (5) very satisfied. In the current study we used the mean FQOL scores for analyses, which demonstrated excellent internal reliability (alpha = .91 at pretest).

Parenting Stress. The Parental Stress Scale (PSS; Berry & Jones, 1995) was developed to assess stress of parenting stress, and contains 18 items representing both positive and negative parenthood components. In the current study, it demonstrated strong internal reliability (alpha = .90 at all three time points), so all analyses used parents' mean scores.

Parenting Practices. The Parenting Scale (PS; Arnold, O'Leary, Wolff, & Acker, 1993) and the Bangor Mindful Parenting Scale (BMPS; Jones et al., 2014) were administered. The PS is a 30-item scale with three subscales (laxness, over-reactivity, and hostility). The BMPS is a 15-item instrument designed to measure parental mindfulness measuring five domains: observing, describing, acting with awareness, nonreactivity, and nonjudgement. For the current study, we used the overall mean for the PS (alpha = .77 at pretest) and total mindful parenting score on the BMPS (alpha = .85 at pretest). To measure parental knowledge, we developed a 20-item multiple choice/true-false test (alpha = .47 at pretest). The test included items related to principles of ABA and routine-based intervention strategies, as well as five questions on mindfulness practice because that content was included in the PR program.

Child Behavior. This was measured with the Strengths and Difficulties Questionnaire–Parent Report (SDQ-P; Goodman, 1997) and the Scales of Independent Behavior-Revised (SIB-R; Bruininks, Woodcock, Weatherman, & Hill, 1996). The SDQ is a 25-item parent-report version of a behavioral screening questionnaire. It assesses both positive and negative behaviors in the following domains: conduct problems, inattention-hyperactivity, emotional symptoms, peer problems, and pro-social behavior. The SBI-R is a 40-item scale that measures 14 areas of adaptive behaviors and 8 areas of maladaptive behaviors. The current study analyzed means of the total difficulty scale (alpha = .80 at pretest) and the adaptive (alpha = .92 at pretest) and

maladaptive behaviors (alpha = .90 at pretest) subscales of the SIB-R, as well as the internalizing and externalizing subscale of the SDQ.

Consumer satisfaction was evaluated using a 9-item, 6-point Likert scale asking about the participants' use and satisfaction with the programs. The consumer satisfaction items were combined into a single measure with strong internal reliability (alpha = .93). Responses to open-ended questions in the consumer satisfaction instrument were subjected to a thematic analysis by two separate reviewers. The responses were analyzed by compiling topics and identifying emergent themes using inductive content analysis. Two authors worked independently to develop core themes and then met to review their lists. Conflicts were discussed until consensus was reached.

Participants were sent T1 approximately one week prior to accessing the Learning Management System (LMS), which housed both programs. Parents were notified to which group they were randomly assigned upon completion of T1. Participants were sent T2 six weeks after T1, and T3 was sent 4 weeks later. Honorarium checks in the amount of $50 were mailed within four weeks of each survey completion. Participants who did not attend any PR sessions were not sent T2 or T3.

Program Descriptions

Both programs focused on ABA within the context of typical family routines. The content guided parents to identify target routines and behaviors of concern, learn about the patterns that may be affecting their children's behavior, and develop strategies to prevent problems, teach skills, and manage access to reinforcement. The LMS courses were divided into modules that included videos, written summaries of each video, fillable forms and other exercises to guide parents through activities to support the intervention process with their

children, and resource materials including links to relevant websites. The parents were expected to complete homework for each module. Parents were given access to the courses for the duration of the study and technical support was available.

Teaching Routines. Teaching Routines was entirely self-directed. The program included eight modules with videos for each ranging 3 – 5 minutes in duration. The topics were antecedent-behavior-consequence method, creating task analyses, antecedent-based strategies, communication, reinforcement, teaching methods, and overcoming obstacles. Participants were assigned six activities using fillable forms and provided additional resources including examples, a glossary of terms, and a list of websites. No feedback was given to the parents apart from the automated completion responses. The participants were given access to the TR LMS for the duration of the study, but post and follow-up assessments were completed at 6 and 10 weeks (i.e., same as the PR condition).

Practiced Routines. Practiced Routines was a facilitated program. It was organized into four modules that included a total of seven videos ranging from 3-13 minutes each. The topics overlapped with those in the TR program, but included more explicit information on function-based strategies, as well as mindfulness practice. Participants were assigned six fillable forms, and provided supplemental data collection tools. Additional resources focused on mindfulness and PBS within family routines. Eighteen brief guided audio meditations were available to participants via the Practiced Mind™ mobile application. The meditations focused on bringing the parents' awareness to both internal and external experiences and helping them act intentionally.

When participants were assigned to PR, they were grouped based on their availability and assigned to one of five parent educators. Parents were encouraged to attend a brief "tech check"

(via WebEx) to test their computer (e.g., webcam, video) and Internet connection. The parent educators contacted participants prior to and between three weekly online meetings via email or phone, not exceeding a total of 10 minutes per participant to check on their progress and respond to questions. The online meetings were held using WebEx video conferencing software with small groups of parents (M = 3.7; range = 1 – 5) per cohort. They lasted between 1.5 and 2 hours, with most approaching 2 hours. Meetings were organized using PowerPoint™ presentations and session guides. A technology support specialist was available during the meetings for assistance.

Treatment Integrity. Because TR was self-directed, it was not necessary to evaluate treatment integrity beyond ensuring that the participants were able to log on to the platform and access all resources consistently. Specific provisions, however, were implemented in PR to ensure that the parent educators were consistent in delivery. Parent educators were master's and doctoral level professionals experience in behavioral intervention with children with ASD and their families. They were provided with training that involved selected readings on positive behavior support and mindfulness, review of the LMS resources, and instruction on facilitating the sessions and using the online meeting system and LMS.

Fidelity checks were conducted for 34% of the sessions. The fidelity checklist included items on content and parent participation. Fidelity for content ranged from 90-100% (M = 99%). Fidelity for participation ranged from 53-100% (M = 94%). Interrater reliability was conducted for 38% of sessions assessed by a second observer. Reliability was evaluated on an item-by-item basis, dividing the number of agreements by agreements plus disagreements and multiplying by 100 to obtain a percentage. Reliability was 87.5% for the content and 97.5% for participation. Dosage was measured as the percent of components (e.g., videos, forms, supplemental resources) accessed by the participants.

Data Analysis

Change was evaluated over time within condition using repeated-measures *t*-tests. To address hypotheses predicting differential change in outcome measures between condition over time we used analysis of covariance (ANCOVA) models that allow for examination of cross-sectional effects and mean adjusted outcomes. The ANCOVA models (adjusted for baseline scores) were used for analyses of change in the outcome measures at posttest and follow-up.