



Exploratory Evaluation and Initial Adaptation of a Parent Training Program for Hispanic Families of Children with Autism

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Over the past two decades, the prevalence of autism has continued to rise, and its impact is felt by families across all races, ethnicities, and cultural backgrounds. Despite the growing number of Hispanic children with autism, most of the research supporting evidence-based practices for families of children with autism is based on studies with non-Hispanic families. The Online and Applied System for Intervention Skills (OASIS) is a training program for parents of children with autism that has been found to improve parents' ability to teach their children new skills and manage challenging behavior. In this paper, we report findings suggesting that although the training is beneficial for Hispanic families, adaptations may be needed to improve its usability and effectiveness with this population. Therefore, using a Cultural Adaptation Process similar to that reported by Domenech Rodriguez and Wieling (2004), we identified cultural adaptations for Spanish-speaking Hispanic families. We describe the specific adaptations recommended by focus groups and an Advisory Board composed of Hispanic families and leaders in the Hispanic community. Given the exploratory nature of this research, we discuss next steps needed to test the adaptations, the need to increase autism awareness within the local Hispanic community, and implications for adapting other highly structured, evidence-based programs that may have limited generalizability to other cultures.

Keywords: Autism; Parent training; Cultural adaptation; Applied behavior analysis

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The Hispanic population of the United States is projected to increase from 46.7 million to 132.8 million between 2008 and 2050 and double its share of the total population from 15% to 30%. In other words, about one in three people in the United States will be Hispanic by the year 2050 (U.S. Census Bureau, 2008). In addition, compared to the 13% increase in the total U.S. population from 1990 to 2000, the Hispanic population increased 58% (U.S. Census Bureau, 2001) and is currently the largest ethnic minority group in the

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United States (Borrego, Anhalt, Terao, Vargas, & Urquiza, 2006). Unfortunately, despite an estimated 10.7% prevalence of developmental disabilities among Hispanic children age 3–17 (Boyle et al., 2011), very few evidence-based practices (EBPs) have been evaluated or adapted for use with Hispanic families of children with disabilities (Axford & Morpeth, 2012; Baker & George, 2013; Bernal & Domenech Rodriguez, 2009; Borrego et al., 2006; Domenech Rodriguez & Wieling, 2004; Elder, Valcante, Won, & Zylis, 2003; Hoagwood & Olin, 2002). However, there is a substantial body of evidence documenting the benefits of adapting interventions in *other areas* such as maternal depression therapies (Valdez, Padilla, Moore, & Magaña, 2013; Valdez, Abegglen, & Hauser, 2013), psychotherapy (Benish, Quintana, & Wampold, 2011; Smith, Domenech Rodriguez, & Bernal, 2011), and parent training to promote positive parent–child relationships (Borrego et al., 2006; McCabe, Yeh, Garland, Lau, & Chavez, 2005). The exploratory research described here was in response to those findings and our own experience in working with Hispanic families with children with autism. In this article we describe (1) preliminary evidence of the need to adapt the training program for Hispanic families, (2) adaptations to the training program identified through Participatory Action Research with the Hispanic community, including parents and educators, (3) next steps for adaptations, increasing autism awareness in the Hispanic community, and (4) implications for adapting other EBPs for cultural sensitivity.

EVIDENCE-BASED PARENT TRAINING

Parent training can be an attractive alternative to clinician-directed interventions not only because so many children need intervention (Barlow & Stewart-Brown, 2000; Rotto & Kratochwill, 1994), but also because of the prohibitive expense of paying private practice interventionists (Barlow & Stewart-Brown, 2000; Eiserman, Weber, & McCoun, 1995; Johnson, Walker, & Rodriguez, 1996; Kacir & Gordon, 1999). Furthermore, the National Research Council (2001) has reported that parent training is a critical component of effective intervention services for children with autism.

Typically, families in rural and geographically remote areas have access to fewer medical doctors, specialists, and psychologists than those in urban and suburban areas (Charles, 2000). As technology becomes more affordable and accessible, parent training programs are emerging that incorporate computer- or web-based instruction, video modeling, and videoconferencing or “telemedicine” to facilitate live coaching (Cefai, Smith, & Pushak, 2010; MacKenzie & Hilgedick, 1999; Matson, Mahan, & LoVullo, 2009; Nefdt, Koegel, Singer, & Gerber, 2010; Vismara, Young, & Rogers, 2012; Wainer & Ingersoll, 2013). With these advancements and expanding Internet access, families living in rural areas are gaining increased access to diagnostic, mental health, and intervention services (Charles, 2000; Hersh et al., 2006; Huston & Huston, 2000; Mistry, 2012). Unfortunately, to date, we know of no distance training programs that have been culturally adapted to teach Hispanic families evidence-based practices for their children with autism.

Culturally Adapting Evidence-Based Parent Training

There is wide consensus across disciplines that mental health EBPs need to be adapted for other cultures rather than assuming that if they are effective for White, middle-class populations, then they should be effective for other cultures (Bernal & Domenech Rodriguez, 2009, 2012; Domenech Rodriguez, Baumann, & Schwartz, 2011; Parra Cardona et al., 2012). Like mental health therapies, adapting parent training for other cultures requires systematic modifications informed by members of the target culture and subsequent testing by the target culture (Bernal & Domenech Rodriguez, 2009; Lau, 2006; Trimble & Mohatt, 2002). This strategy is often recommended instead of developing new

interventions specific to individual cultures or ethnic groups (Domenech Rodriguez & Wieling, 2004). Benish et al.'s (2011) meta-analysis found that culturally adapted psychotherapies resulted in significantly more improvements in patients' psychological functioning relative to the nonadapted versions ($d = 0.32$). Additionally, Griner and Smith (2006) reviewed studies comparing culturally adapted mental health services to services that were not adapted to the patients' cultural background; they found that culturally adapted services were about four times more effective for culturally diverse populations than non-adapted services. These reviews revealed key factors associated with successful culturally adapted interventions, including the importance of providing services in the patient/client's native language and individualizing adaptations to specific cultures rather than simply making general adaptations. Finally, interventions with more cultural adaptations were typically more effective than those with a limited number of changes.

Parent-Child Interaction Therapy (PCIT) (Eyberg & Robinson, 1982) is one such parent training program that has been culturally adapted for use with Hispanic families. Borrego et al. (2006) conducted a single-case evaluation of PCIT with a Spanish-speaking Mexican-American mother whose foster child engaged in problem behaviors. They demonstrated that delivering PCIT in Spanish was effective and that only minor changes to the original version were necessary. However, more substantial adaptations may have been needed if the therapist was unfamiliar with Hispanic culture and failed to incorporate Hispanic values into the intervention sessions. For instance, the therapist knew that extended families usually play a larger role in Hispanic families than in other cultures, and that parents highly value teaching their children good manners and respect for authority and elders. Also, the therapist developed a "warm" relationship with the family (*personalismo* and *simpatia*), and therefore devoted time during each session to ask not only about the child's progress but also about family members' wellbeing. Systematic adaptations to PCIT were informed by reviews of the clinical literature, focus groups, and interviews with Hispanic families (McCabe et al., 2005). These adaptations included individualizing the program based on an initial cultural assessment, describing the program as *educational* instead of *therapeutic*, increased time for building rapport between the parent and therapist, adding representations/scenarios in the training that involve Hispanic families, and increased engagement with other family members beyond the mother.

APPLIED BEHAVIOR ANALYSIS AND THE OASIS PARENT TRAINING PROGRAM

According to the U.S. Surgeon General (1999), "Thirty years of research demonstrated the efficacy of applied behavioral methods in reducing inappropriate behavior and in increasing communication, learning and appropriate social behavior" (p. 164). Also, the National Autism Center (2009) identified 11 interventions as "established" treatments for children with autism, all of which were grounded in principles of Applied Behavior Analysis (ABA). ABA is not a specific program, but a method of arranging the environment to decrease problem behaviors (e.g., noncompliance, tantrums, running away, self-injury, self-stimulation, and aggression) and improve daily functioning (e.g., communication, social skills, daily living skills, and motor skills) and academic skills (Cooper, Heron, & Heward, 2007; Mayer, Sulzer-Azaroff, & Wallace, 2012). However, ABA interventions require significant training to design and implement. To sit for the Behavior Analyst Certification Board exam, the examinee must have at least a master's degree and a minimum of 1500 hours of supervised fieldwork in behavior analysis (Behavior Analyst Certification Board, n.d.). Families in remote areas where access to Board Certified Behavior Analysts (BCBAs) is limited or nonexistent often have no other choice but to learn these skills on their own to maximize natural opportunities for their children to learn new skills and reduce challenging behaviors that impede

improved functioning. As an added barrier, little research exists that examines the influence of cultural and language differences on intervention effectiveness for children with autism (Bernal, 2006).

The Online and Applied System of Intervention Skills (OASIS) distance training program was designed to teach parents how to implement ABA-based strategies with their children with autism (Buzhardt & Heitzman-Powell, 2005; Heitzman-Powell, Buzhardt, Rusinko, Turek, & Miller, 2014). OASIS combines web-based instruction with live coaching and feedback facilitated through web-based videoconferencing or “telemedicine.” The web-based tutorials develop parents’ knowledge of ABA procedures and techniques, and the videoconferencing facilitates live coaching and immediate feedback to parents as they practice the procedures with their child. Like most training and intervention programs developed in the United States, all OASIS materials were developed and tested with English-speaking families (Heitzman-Powell et al., 2014).

OASIS consists of eight online modules that cover the following topics: (1) Autism and Treatment; (2) Defining and Observing Behaviors; (3) Principles of Behavior; (4) Stimulus Control; (5) Effective Teaching Strategies; (6) Decreasing Behaviors: Antecedent Control; (7) Decreasing Behaviors Using Consequences; and (8) Pulling it All Together (how to work with a therapy team and eight primary curriculum areas). Each module consists of an online tutorial, online knowledge assessment, and 1–2 90-minute live coaching sessions. The online tutorials require active engagement through fill-in-the-blank, drag-and-drop, and multiple-choice questions. Immediate feedback is provided following each response within the tutorials. A 20-question online assessment follows each tutorial. A minimum score of 90% is required on the assessment to attend the coaching sessions for that module.

Parents also participate in live web-based coaching sessions with their child and a trained OASIS coach. During coaching, parents are asked to engage with their child in a predetermined activity designed to assess their application of the skills covered in the tutorial. Progression to subsequent modules (online tutorials and coaching sessions) depends on the parent demonstrating the module’s skill(s) with at least 80% mastery as determined by the coach.

EXPLORATORY EVALUATION OF OASIS WITH A HISPANIC FAMILY

Similar to other early-stage evaluations of EBPs with Hispanic populations (e.g., Borrero et al., 2006), we begin by reporting a single-case exploratory evaluation of the OASIS training program that included a Hispanic family whose primary language was Spanish. This was part of a larger project to develop and test the OASIS training program (Heitzman-Powell et al., 2014). For this exploratory evaluation, we used a pre-posttest design to assess the effect of OASIS on parental knowledge of the training material and application of the strategies with their child.

The OASIS Training Program

OASIS training was delivered as summarized above and described in more detail in prior publications (see Heitzman-Powell et al., 2014). Parents completed online tutorials, assessments, incidental teaching forms, and problem behavior forms on an Internet-connected computer (at home, work, library, etc.) through the OASIS Blackboard® learning management system. Coaches viewed parents’ performance on knowledge assessments before coaching sessions through this system as well. Coaching sessions were conducted from the coach’s location to a site near the family’s home that had the appropriate videoconferencing hardware and Internet connection.

Families and Coaches

Carmen was 45 years old and attended a local community college. She reported that she could read English but had difficulty speaking and understanding spoken English. Santiago, Carmen's son, was 40 months old and had been diagnosed with autism within 6 months of the start of training. Carmen's husband was fluent in English and reported that he would be able to translate tutorial information as needed and interpret English instructions and feedback during assessments and coaching. The three non-Hispanic comparison families were similar to the Hispanic family in that the parent ages ranged from 32–37; all parents had some college experience but no degree; their annual family income ranged from \$60–75,000; and their children were 58, 34, and 63 months of age at the start of training.

Typically, families had one primary coach. Carmen, however, also had an interpreter who was fluent in Spanish and English and was a graduate student in applied behavioral sciences. The interpreter began participating in sessions with Module 4 Part 2 when it became apparent that Carmen's husband would not be able to attend most coaching sessions (see *Initial procedural adaptations for Hispanic family* section for additional details).

Exploratory Evaluation Measures

Parent knowledge assessment

We assessed parent knowledge using online pre- and posttests comprised of 48 multiple-choice items (i.e., six items from each of the eight online tutorial assessments). This assessment was administered before and after training. Knowledge was also assessed after completing each online tutorial with an online 20-item multiple-choice assessment.

Parent skill assessment

Parents' use of 41 ABA skills was assessed before and after training across six general domains: (1) preference assessment; (2) structuring the environment; (3) reinforcement procedures; (4) prompts and prompt fading; (5) shaping; and (6) general teaching procedures. Assessors viewed videotapes of the pretest and posttest assessments and scored parents' demonstration of skills (correct/incorrect) using a standard scoring form.

Two research assistants coded the skill assessments via videotape. To measure reliability, they both coded 40% of the pretests and 28% of the posttests. To calculate reliability across these assessments, they divided the number of agreements by the total number of agreements + disagreements resulting in a mean pretest reliability of 89% and 85% for the posttest.

Initial procedural adaptations for Hispanic family

Because Carmen's husband reported that he would be available to interpret during assessments and coaching sessions, we did not initially involve a separate interpreter. So, for the pretest and early coaching sessions, Carmen's husband served as an interpreter when needed. However, he became unavailable half-way through training so we enlisted the assistance of the fourth author, described above, as an interpreter during coaching and posttest assessment beginning with Module 4 Part 2. She interpreted the coach's instructions, questions, and feedback, as well as Carmen's questions and answers for the coach.

Results

Knowledge gains

Figure 1 compares Carmen's scores on her first attempt on each tutorial assessment to those of the three non-Hispanic parents who completed training at the same time. Carmen's scores across all eight tutorials were lower ($M = 60.63\%$, range = 40–50%) than non-Hispanic families ($M = 91.67\%$, range = 75–100%). However, she achieved the 90% mastery criterion on her second attempt for six of the tutorials, and met the criterion for the two remaining tutorials on her third attempt. On the overall pre- to posttest knowledge assessments, Carmen scored 10% correct at pretest compared to non-Hispanic families' mean of 67% (range = 62–71%). On the posttest, she scored 100% compared to non-Hispanic families' mean score of 95% (range = 75–100%). Thus, Carmen had substantially greater pre- to posttest knowledge gain (90 percentage points) compared to non-Hispanic families ($M = 18$ percentage points) as a result of her low performance on the pretest.

Skill mastery gains

At pretest, Carmen correctly demonstrated 20% of the 41 skills, which was lower than the mean of non-Hispanic parents (32%) but higher than their lowest score of 14%. At posttest, Carmen correctly demonstrated 67% of the skills, which, although it represented a substantial gain from pretest, was lower than all but one of the non-Hispanic parents' scores.

Training time

The time between pretest and posttest for Carmen was 36 weeks, far exceeding the training time of non-Hispanic families, which ranged from 15–25 weeks.

EXPLORATORY EVALUATION CONCLUSIONS

Similar to the findings of others who have culturally adapted parent training programs (e.g., Borrego et al., 2006; Parra-Cardona et al., 2009), Carmen clearly benefited from many of the original core components of the OASIS intervention, which were not modified but adapted in their method of delivery (i.e., use of a Hispanic interpreter) to ensure

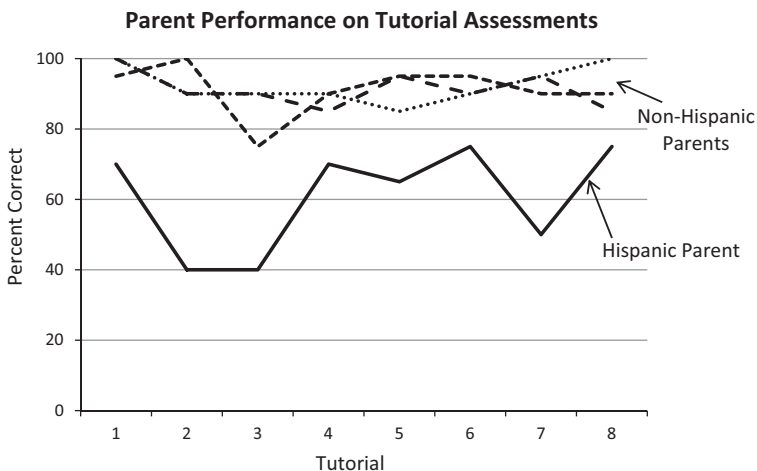


FIGURE 1. Parents' performance on their first attempt of each online tutorial's online posttest.

cultural relevance. However, all of her scores on the tutorial posttests range from 10–45 percentage points lower than the lowest performing non-Hispanic parent. Although she reported that her husband helped translate text from the tutorial, it is unclear how this support was provided and how often. Carmen's performance on the skill assessment was also lower than that of all primary non-Hispanic parents who experienced the full OASIS training, despite spending 36 weeks in training compared to the range of 15–25 weeks spent by non-Hispanic families. The coach and interpreter reported that interpreting and repeating information and instructions was a significant contributor to the extended training time. The use of an interpreter rather than a coach fluent in Spanish during pre- and posttest skill assessments may have also contributed to lower performance on these assessments.

Although Carmen demonstrated gains in her knowledge and skill in implementing ABA with her child, her relatively low scores on the tutorial posttests and skill assessments, as well as the extended time required for her to complete training, suggested that adaptations were needed to optimize OASIS's effectiveness with Hispanic families. Continuing in the spirit of Participatory Action Research (PAR: Campbell, Copeland, & Tate, 1998; White, Nary, & Froehlich, 2001) and Cultural Adaptation Models (Bernal & Domenech Rodriguez, 2012), we sought insight from the Hispanic community for recommendations on specific adaptations to improve the effectiveness of OASIS for this population. In PAR (also referred to as Community-based Participatory Research [Fielden et al., 2007; Fraenkel, 2006]), members of the targeted population are directly involved in research activities—not only as subjects but also in the implementation of research activities, decision making throughout the research process, and, in some cases, the research design itself. For the current study, we utilized Focus Groups and an Advisory Board comprised of local members of the Hispanic community that provided ongoing consultation throughout the project as described in the following section.

PRELIMINARY ADAPTATION OF OASIS FOR HISPANIC FAMILIES

Our process for identifying adaptations was similar to the Cultural Adaption Process model reported by Domenech Rodriguez and her colleagues (see Domenech Rodriguez et al., 2011; Bernal & Domenech Rodriguez, 2012; Parra Cardona et al., 2012; and Smith et al., 2011). Here, we report the first two phases of this three-phase process: Phase 1, preparing for adaptation and working with the target community to identify potential adaptations, and Phase 2, identifying adaptations appropriate for OASIS that would not compromise the highly prescriptive nature of the training and the ABA procedures it teaches. It is important to note that our goal in adapting OASIS for Hispanic families was to *improve* or *optimize* the impact of OASIS with this population. Without these adaptations, data reported above and those from other studies (Griner & Smith, 2006; Smith et al., 2011) suggest that Hispanic families would, indeed, benefit from OASIS training, but that cultural adaptations would maximize those benefits.

Phase 1: Team Preparation and Collaboration with Hispanic Community

Our primary development team consisted of the developers of the OASIS training program (Drs. Heitzman-Powell and Buzhardt), a bilingual project coordinator, and a bilingual/bicultural intervention specialist. Dr. Heitzman-Powell and the bilingual/bicultural intervention specialist are also BCBAs, meaning that they have completed the certification requirements and supervision hours demonstrating their knowledge and skill in delivering ABA therapy at high levels of fidelity. Also, the intervention specialist served as the interpreter for the Hispanic family during the formative evaluation. The team

sought to evaluate the two primary components of the OASIS training program for areas in need of adaptation for Hispanic families: the online training modules (tutorials and assessments) and the coaching sessions (scripts and coaching procedures).

Four areas of adaptation identified by the team prior to beginning *Phase 2* (see below) included (1) translation of all trainee materials and coach scripts into Spanish, (2) the use of a bilingual coach rather than an interpreter during coaching sessions, (3) encouragement of parents to promote the use of the OASIS strategies among their extended family, and (4) incorporating *familism* or *familismo* into training. *Familismo* refers to Hispanic families' inclusion of extended family in "many family functions, such as caretaking and control of children, financial responsibility, companionship, emotional support, and problem solving" (Falicov, 1998, p. 162)

Following the establishment of the development team, we sought input and feedback on adaptation of OASIS from members of the local Hispanic community who had no prior experience with the training. For this purpose, we recruited an Advisory Board of local Hispanic educators and social service providers to assist with content translation and provide recommendations for cultural adaptations. Additionally, we solicited feedback from two focus groups with Hispanic parents from the local community with and without children with autism. Figure 2 summarizes our approach to engaging the Hispanic community to identify cultural adaptations and to maintain ongoing feedback.

For the Advisory Board and Focus Group participants, we described the OASIS procedures, they completed a brief tutorial translated into Spanish, viewed video recordings of

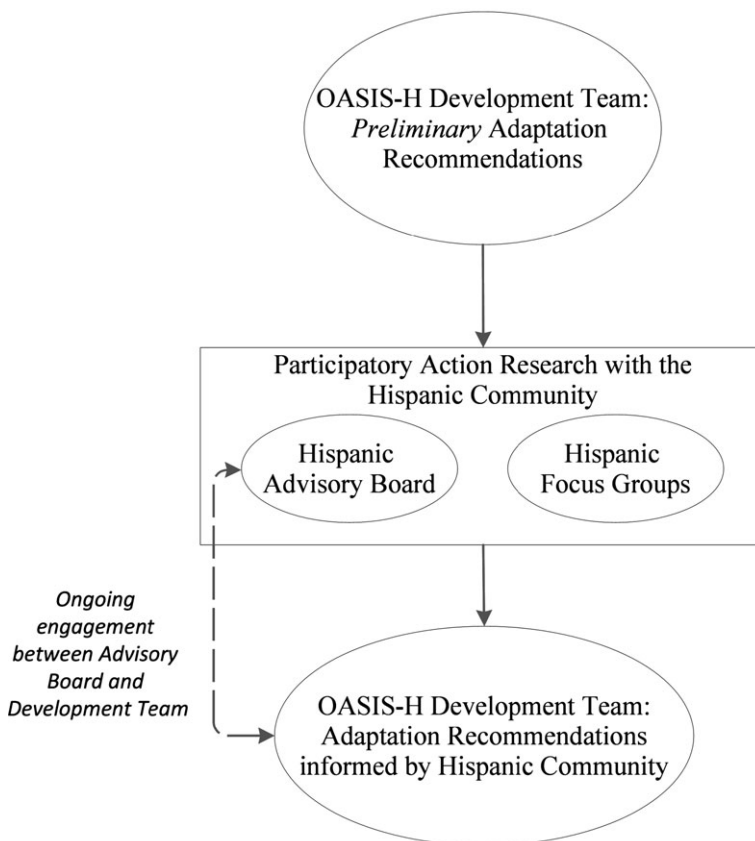


FIGURE 2. Summary of the process for identifying cultural adaptations of the OASIS training program for Hispanic families.

OASIS coaching sessions, reviewed sample translations of coaching sessions, and discussed adaptations for Hispanic families with the OASIS development team. The Advisory Board consisted of four native Spanish-speaking individuals from Puerto Rico, Peru, Mexico, and Honduras. All had experience in translating documents and/or interpreting live discussions.

The Focus Groups consisted of two Hispanic parents of children with autism, and five Hispanic educators and family service providers who work with children with autism and their parents. We worked with the Focus Groups in 2-hour sessions in which we reviewed the purpose of the training and the module content, and we asked participants to complete a translated online tutorial and watch a video of coaching sessions. Next, we discussed what adaptations were needed to optimize OASIS for Hispanic families (e.g., “What are some ways that we could encourage parents to involve extended family in training-related activities at home?”). In addition to questions about the training itself, we also asked Focus Groups to consider issues such as “What strategies should be used to communicate with families between coaching sessions?”, “How do we reach families who may not think their child has a disability?”, and “What outlets should be used to disseminate information about OASIS to the Hispanic community?”

The Advisory Board convened with the development team in similar sessions to discuss potential adaptations, and in subsequent sessions throughout development, to review progress and make additional recommendations as needed. In addition, each advisory board member was assigned two modules to review and provide suggestions on the training program’s translated text (e.g., online tutorials, assessments, coaching scripts, etc.).

Phase 2: Intervention Adaptation

The development team compiled the Focus Group and Advisory Board recommendations, and, with input from the Advisory Board, finalized a set of adaptations. Table 1 summarizes the recommendations of the Advisory Board and Focus Group that we implemented for the first iteration of OASIS-Hispanic (OASIS-H). The adaptations are grouped by five of the key dimensions of Domenech Rodriguez et al.’s (2011) Ecological Validity Model (EVM): Language, persons, content, methods, and context.

For the *language* dimension of EVM, adaptations were made to both the online tutorials and the coaching materials. In addition to translating all content into Spanish, there were recommendations related to improving the readability of the online content by providing alternative descriptions of technical terms, additional time for explaining the content during coaching sessions, or additional visual cues to emphasize key concepts. These adaptations, which essentially provide opportunities to individualize the language of the training based on the needs of the parent, are also appropriate for the diverse families that access the original OASIS program.

For the *persons* dimension, which refers to the need for matching interventionists and their clients, both the Focus Group and Advisory Board strongly recommended that Hispanic parents work with a Spanish-speaking coach (i.e., do not use an interpreter) who is familiar with Hispanic culture and customs. The exact degree to which the coach needs to be bicultural was not agreed upon. But at a minimum, in addition to being fluent in Spanish, the coach needed to have been raised in a Hispanic family or currently living with one. Strategies for assessing biculturality and the aspects of Hispanic culture that should be familiar to coaches need further investigation.

Adaptations to *content* are designed to make the training more relevant to families’ cultural values by referencing cultural concepts and themes. For example, the board suggested that we emphasize the role of *familism* (Falicov, 1998) to connect the training to a critical part of Hispanic culture. This embedding of relevant cultural metaphors and

TABLE 1
Summary of OASIS-H Adaptations and their Fit with the Original OASIS

Area	OASIS-H Adaptation	Relevance to Original OASIS Training
Language	Translated all content into Spanish. Translations reviewed and edited by Advisory Board Members with varying Hispanic backgrounds. Ongoing revisions are informed by Hispanic families who complete the training	N/A
	Included alternative descriptions and English terms for technical terms without specific Spanish equivalents	Alternative descriptions (e.g., less technical/formal) will benefit non-Hispanic families
	Used more informal descriptions of concepts, including more visuals to highlight key terms and concepts in the online modules	Visuals and informal descriptions could improve original OASIS, particularly those with limited literacy skills
Persons	Coach should be bilingual with an Hispanic background (use of an English-speaking coach and interpreter is not recommended)	N/A
	Parents with children with ASD whose primary language is Spanish	N/A
Content	Include concepts and terms specific to Hispanic culture. For example, the concept of <i>familismo</i> is used to encourage parents to teach strategies to extended family	Consider investigating inclusion of other culturally specific concepts depending on family's background (e.g., African-American, Asian, Native-American, etc.)
	Expand the first module to more clearly describe the purpose of the training and relate training goals to Hispanic cultural values	An expanded first module will be considered to clarify goals and training expectations for non-Hispanic families
	Include video modeling in tutorials to demonstrate complex procedures, especially those that include English technical terms	Videos demonstrating complex procedures would likely benefit all parents, regardless of cultural background
	During coaching, discuss English technical terms that do not have Spanish equivalent	In the original OASIS, coaches discuss technical terms that parents have difficulty understanding based on their performance on online tutorials
Methods	Expand methods of communication between coaches and parents (e.g., regularly scheduled phone calls or texts)	Parent-coach communication strategy will be individualized to parents' preference regardless of culture
	Training provided via Skype so that families could receive training in their home rather than travel to a medical facility	Investigating feasibility of in-home teleconferencing for all families
Context	Developed strategies to implement coaching with multiple other children (siblings, cousins, and friends) in the household. For example, provide/recommend child activities for times when child is not involved in training, encourage extended family or friends to help with childcare	Strategies appropriate for families of all cultures with large families, frequent presence of extended family or visitors

concepts has been found to be a significant factor in the success of other culturally adapted interventions in general (Smith et al., 2011), and specifically with regard to facilitating extended family members' involvement in the program (Valdez et al., 2013). There was also concern that Hispanic parents may not understand the purpose of the training and the expectations placed on them. For example, parents are asked to collect data on behaviors that they want to change, which are then shared with the coach during coaching sessions to evaluate progress and address challenges. Initially, this can be time-consuming

and difficult for parents to understand how it helps them support their child's progress. Therefore, the first OASIS tutorial now provides information about this aspect of training so parents have a clearer understanding of the expectations during and outside of training sessions. Other content adaptations include the development of videos of Hispanic parents demonstrating the strategies with their children, and parent-coach discussion of technical terms without Spanish equivalents to ensure parents understand their meaning regardless of their performance on online assessments.

Adaptations to OASIS *methods* primarily involved expanding the ways in which coaches communicate with parents during and outside of coaching sessions. The Focus Group recommended incorporating text messaging as an additional option for coach-parent communication and to consider using it for occasional "check ups" and prompts during the week to maintain parents' use of strategies between weekly coaching sessions. This recommendation is supported by findings demonstrating that parents prefer to use technology to communicate with teachers and community partners (Love, Sanders, Metzler, Prinz, & Kast, 2013), and that supporting parent training programs with texting and cell phone calls reduces parent dropout and improves parents' use of targeted strategies and child outcomes (Carta, Lefever, Bigelow, Borkowski, & Warren, 2013). Also, despite common misconceptions, a 2010 Pew report showed that 76% of Hispanics use a cell phone and 56% use text messaging (Livingston, 2010). We also explored the use of desktop videoconferencing solutions (e.g., Skype[®], Facetime[®]) to allow in-home coaching as an alternative to traveling to a local school or hospital with advanced telemedicine technology. This option would further support *familism* by facilitating inclusion of extended family in the training. It may also alleviate concerns of undocumented parents about providing personal information often required by institutions providing families access to their telemedicine resources.

Finally, within the *context* dimension of the EVM, adaptations were recommended to address in-home coaching with larger families. Considering that Hispanic families tend to be larger than non-Hispanic families (U.S. Census Bureau, 2013a,b), the Focus Group recommended planning activities for siblings or other children who may be present during in-home training sessions. Although coaches encourage parents to find alternative care for other children so that they can focus on training, this may significantly limit the feasibility of the training for many Hispanic families with large families and limited resources for obtaining alternative care.

DISCUSSION AND FUTURE DIRECTIONS

"Cultural adaptation of an intervention is not static...we must allow for an evolving process to emerge throughout the life of the research endeavor" (Domenech Rodriguez & Wieling, 2004, p. 326). In this report, we describe the first two phases of an ongoing process of testing, revising, and re-testing what will eventually become the *OASIS-H (OASIS-Hispanic) Parent Training Program*—an evidence-based parent training program for Hispanic families.

A consistent struggle throughout the adaptation process has been determining whether or not to implement an adaptation that might compromise the effectiveness of the training. Indeed, as noted by Parra-Cardona et al. (2009), some scholars have argued that making cultural adaptations to evidence-based training programs risks lessening their effectiveness if core components are modified (Chaffin et al., 2004; Kumpfer, Alvarado, Smith, & Bellamy, 2002) and that new interventions need to be developed that are designed to account for the needs of a specific culture (Comas-Diaz, 2006; Gone, 2009). However, given the findings of reviews and meta-analyses of culturally adapted interventions (e.g., Benish et al., 2011; Griner & Smith, 2006; Smith et al., 2011), it is clear that

culturally adapted interventions are often more effective and more accepted by clients than their nonadapted counterparts. Nonetheless, these findings are not universal (Chaffin et al., 2004), suggesting that the effectiveness of culturally adapted interventions depends on the care with which the adaptations are made such that they consider the needs of the population without removing key components of the intervention. For example, a consistent recommendation by the Advisory Board and Focus Groups was to improve the readability of the online tutorials by removing references to technical terms related to ABA. The development team, however, recognized the importance of parents learning these technical terms so that they can communicate more effectively with educators and therapists using ABA strategies. Thus, a compromise was reached whereby the technical language remains in the training, but voice-over narrations would be developed for the tutorials (reducing the risk of failing to understand a concept because of limited reading comprehension skills), and video models of technical strategies (e.g., conducting a preference assessment) would be included in the tutorials so parents can see how strategies are implemented within natural contexts.

It is interesting to note that some of the adaptations to OASIS may not be particularly unique to Hispanic families. For example, all *content* adaptations (Table 1) may make the online content more accessible to a wider audience, regardless of ethnicity. In the original training program, the purpose for limiting video and audio voice-overs was to make it more accessible over dial-up and other limited Internet connections (Buzhardt & Heitzman-Powell, 2005). However, improved broadband access and technology advances that improve access to large online audio and video files increases the feasibility of tutorial voice-overs and video examples. Also, expanding the ways in which coaches communicate with parents to include texting and regular phone calls could potentially improve all parents' use of ABA strategies during times outside of the coaching sessions, regardless of ethnic or cultural background. Unfortunately, much of the research on the use of cell phones and text messaging has been done with non-Hispanic families (Carta et al., 2013; Love et al., 2013), so further research is needed in this area.

Because of the exploratory nature of this study, our findings are limited to the OASIS training program. Furthermore, we sampled from a small number of Hispanic individuals, which further limits the generalizability of the adaptations. Testing of these adaptations with additional Hispanic families has begun to assess the effectiveness of the adapted OASIS-H program.

Future Directions

In addition to adapting EBPs for Hispanic families, there is a need to investigate effective approaches to promoting awareness about autism and EBPs within the Hispanic community. There is a 50% lower autism prevalence rate among Hispanics than non-Hispanics (Centers for Disease Control, 2007; Kogan et al., 2009; Liptak et al., 2008; Lord & Bishop, 2010; Palmer, Walker, Mandell, Bayles, & Miller, 2010). To date, there is no evidence that this prevalence rate is associated with a biological or genetic factor within the Hispanic population, suggesting that autism is significantly under-diagnosed among Hispanics. Culturally adapted EBPs are of little help for families that are unable to recognize the symptoms of autism, conceptualize it as a treatable developmental disability, and realize that parents play an important role in its treatment.

There are a number of potential sociological factors that could influence the Hispanic autism prevalence rate and inform parent training content, design, and dissemination efforts. For example, significantly higher rates of autism were found in English-speaking households as compared to Spanish-speaking households, suggesting that language barriers may impede diagnosis (Liptak et al., 2008). Language may impede diagnosis because

language deficiencies, a key indicator of autism, are attributed to a lack of fluency in English (Limbos & Geva, 2001) rather than a symptom of autism. Others have suggested that differing cultural expectations of child behavior and parents' roles in their child's development may result in fewer Hispanic parents seeking support for severe problem behavior (Norbury & Sparks, 2013; Welterlin & La Rue, 2007). Education background is also a potential contributor to under-diagnosis—18.3% of native-born Americans have a college degree by the age of 25, compared to 4.1% of those born in Mexico and 6.4% born in Central America. Finally, relative to non-Hispanics, the Hispanic population has also historically been less likely to utilize services such as mental health than other groups (Liptak et al., 2008; Martinez & Eddy, 2005), report less accesses to social services (Liptak et al., 2008; Martinez & Eddy, 2005), are less likely to have health insurance to pay for diagnostic services (Politzer, 2009), and report different cultural expectations of child behavior (Welterlin & La Rue, 2007). All of these factors need to be considered in the design of parent training and intervention for children with autism and in the promotion of those interventions.

As demonstrated by this study and others (e.g., Parra-Cardona et al., 2012; Smith et al., 2011), the question facing interventionists and intervention developers is no longer “*Should* we adapt our intervention for other cultures?”, but “*How* should we adapt our intervention such that its active ingredients are equally effective and usable across cultures?” There are numerous approaches to identifying potential cultural adaptations, but common across nearly all adapted interventions is consultation with members of the targeted population. Regardless of the approach used to identify and implement cultural adaptations, this is only the first step. Next steps include optimizing those adaptations through iterative testing with Hispanic families, and conducting a randomized trial to determine the effectiveness and acceptability of OASIS-H with Hispanic families relative to the original OASIS. Answers to these questions will result in a training program optimized for use with Hispanic populations, and that will inform approaches used by others to adapt EBPs for Hispanic families.

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