FAMILY PROCESS

Parents Taking Action: A Psycho-Educational Intervention for Latino Parents of Children With Autism Spectrum Disorder

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The increased prevalence of autism spectrum disorder (ASD) among Latino children, later diagnosis, limited access to bicultural specialist support, and worsened health outcomes when compared to non-Latinos points to the need for a culturally relevant parent education intervention. This pilot study examined the feasibility, acceptability, and preliminary outcomes of a culturally derived intervention, Parents Taking Action, for 19 Spanish-speaking mothers of children with ASD. This study introduces the Promotora de Salud Model of intervention delivery to the autism field. A mixed-methods design including one group pre- and posttest design and focus groups was used to evaluate the outcomes of PTA. We found that the intervention was both feasible to implement and acceptable to participants. We also found significant increases in empowerment oriented outcomes for parents between pre- and posttest suggesting that the intervention is promising. Suggestions for future research and practice are offered.

Keywords: Autism; Culture; Latino; Parent education; Promotora

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Latinos represent the largest ethnic minority population in the United States (Patten, 2012) and are one of the fastest growing autism populations (Center for Disease Control and Prevention [CDC], 2012). The prevalence of autism spectrum disorder (ASD) among Latino children increased by 110% between 2002 and 2008, compared with a 70% increase for White children (CDC, 2012). Recent studies also show that Latino children with ASD or another developmental disability, compared to White children, have a consistent pattern of worse health care access, utilization, and quality (Parish, Magaña, Rose, Timberlake, & Swaine, 2012). Additionally, Latino children are more likely to be diagnosed later and are less likely than White children to receive specialty autism services including Applied Behavioral Analysis (ABA)-based interventions (Liptak et al., 2008; Magaña, Lopez, Aguinaga, & Morton, 2013; Mandell et al., 2009; Palmer, Walker, Mandell, Bayles, & Miller, 2010). Furthermore, a needs assessment found that the

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majority of Latino families surveyed needed more information about autism and helping their child, more formal and informal social support, and more financial support (Iland, Weiner, & Murawski, 2012). Therefore, there is a growing need for the development of effective, affordable, and culturally appropriate interventions for Latino children with ASD and their families.

In the current paper, we describe a culturally derived psycho-educational parent education intervention, Parents Taking Action (PTA), and present results of a pilot study that examined the feasibility, acceptability, and preliminary outcomes of the PTA intervention when implemented with Latino immigrant mothers of children with ASD.

PARENT TRAINING AND ASD

Recent systematic reviews show that parent training programs are considered to be an effective evidence-based intervention for children with ASD, especially in conjunction with traditional autism therapies (Matson, Mahan, & Matson, 2009). Research has shown that parents and caretakers are the most effective primary interventionists because they spend more time with their children than professional clinicians (McConachie & Diggle, 2007). Because of their unparalleled access to their children, parents are better able to reinforce positive behaviors as they occur and maintain treatment gains over time. In addition, parents and caregivers are able to help children generalize skills learned in clinical and school sessions to other settings, including the home and community. Furthermore, there is an increasing need for cost-efficient interventions for ASD as the prevalence of ASD continues to rise, and researchers are relying more and more on parent training as an affordable intervention (Steiner, Koegel, Koegel & Ence, 2012).

Most research on parent training as an intervention tool for children with ASD has focused on middle or higher income intact families (Matson et al., 2009). The current body of research lacks much needed studies focusing on parent training for low-income parents of children with ASD and parents of different racial, ethnic, and cultural backgrounds. The field would benefit from studies that evaluate parent training as an effective intervention for a distinct and growing population, Latino immigrant families of children with ASD. Existing autism parent training programs including those described in Matson et al.'s review do not address the specific needs of Latino immigrant families, who often lack basic information about disability, autism, services and treatments, and advocacy (Iland et al., 2012; Lopez, 2014; Magaña et al., 2013). Therefore, we decided to create a program that addresses the specific needs of Latino immigrant families rather than translating an existing intervention into Spanish.

CULTURALLY ADAPTED OR DERIVED INTERVENTIONS WITH LATINO FAMILIES

In fact, a growing body of literature suggests the importance of taking the linguistic, contextual, and cultural backgrounds of the target population into consideration when developing interventions (Castro, Barrera, & Holleran Steiker, 2010; Parra Cardona et al., 2012; Valdez, Abegglen, & Hauser, 2013; Valdez, Padilla, Moore, & Magaña, 2013). Given the influence of family culture on caregiver knowledge, acceptance, and utilization of interventions (Lopez, 2014; Snowden, Hu, & Jerrell, 1995), a parent education program should consider cultural factors to be successful.

The Ecological Validity Framework (Bernal, Bonilla, & Bellido, 1995; Bernal, Jiménez-Chafey, & Rodríguez, 2009) outlines an eight-dimensional framework of adaptations for interventions to enhance their ecological validity within the Latino population. The framework serves as a foundation to adapt or develop culturally sensitive treatment or interventions. According to Bernal and colleagues, culture, meaning, and context are critical elements to consider in the development of treatment and interventions for Latinos. Further, they emphasize the role of *language, persons, metaphors, content, concepts, goals, methods,* and *context* in the adaptation of interventions for Latinos. The framework suggests that including each of these dimensions in treatment or interventions for different cultural groups will improve the ecological validity as well as the external validity of the work. We used the framework of Bernal and colleagues to develop the PTA intervention in collaboration with our community-based partner and advisory group (see Table 1). An important aspect of our intervention is the use of the Community Health Worker Model (described below), which incorporates peers who are from the same community and speak the same language. We also ensured that our curriculum incorporated storytelling, common sayings, and cultural values. Flexibility and reduction of barriers through home visits were other aspects of ensuring the intervention was culturally responsive.

With respect to the intervention delivery method for PTA, we chose to use the Community Health Worker Model, or as it is known in Spanish, the Promotora de Salud Model. A promotora is a lay health educator or peer leader who is indigenous to the Latino community and receives training to provide education to encourage behavioral changes in a culturally informed way (see Rhodes, Foley, Zometa, & Bloom, 2007; Stacciarini et al., 2012 for reviews). Their mutual characteristics make promotores especially appropriate for difficult to reach populations that have a history of access to and distrust of the medical system (Twombly, Holtz, & Stringer, 2012). This model has enhanced the recruitment of

Table 1
Ecological Validity Framework for Cultural Adaptation

Dimension	**Incorporation into intervention and materials**
Language—the language in which the intervention is developed, available, and delivered.	Our primary target population was Spanish-speaking immigrants, therefore, the materials were in both Spanish and English, and the promotoras were native Spanish speakers.
Persons—the patient and provider characteristics and the dynamic between them that make up the therapy relationship.	Peer-led interventions have been shown to be effective in providing information to underrepresented communities. The promotoras were from a similar cultural and geographic community as the participants, and had a child with ASD; so they were peers on several levels.
Metaphors—symbols and concepts shared by the target population.	Common Spanish saying or "dichos" as well as storytelling were incorporated into the manual. For example, participants are asked to reflect on the following saying, "poco a poco, se anda lejos" or "little by little, one goes far."
Content—cultural knowledge including values, costumes, and traditions.	The protocol and manuals incorporated cultural values such as familismo (needs of family comes before individual) and personalismo (relationship focused) in their content.
Goals—the goals of treatment are culturally appropriate and developed jointly by the client and therapist.	Goals specific to the parents and their child with ASD and that are realistic in their environmental context.
Methods—the procedures for achieving treatment goals.	Methods included the promotora de salud model and are flexible, fostering relationship building and including the family.
Context—the impact of context on participants (i.e., acculturative stress) and multiple contexts throughout the course of intervention such as the social context of the intervention.	The home-visit model overcomes barriers to participation by eliminating the need for transportation and child care. The promotora adapts to the context of the participant's environment.

Latino participants in intervention studies and has been integral in improving appropriate screening for chronic diseases, health education, and health behaviors including following dietary guidelines (Stacciarini, 2009; WestRasmus, Pineda-Reyes, Tamez, & Westfall, 2012). In addition, the Promotora Model has been found to be effective in providing information about child health and modifying parent behaviors to improve child health among Latino children (Ayala et al., 2010; Rhodes et al., 2007). Moreover, the involvement of promotoras and the collaboration with a community-based organization (CBO) in the development and implementation of the intervention aligns with the Interagency Autism Coordinating Committee (2011) strategic plan, which suggests that researchers partner with CBOs. The use of a Promotora Model is also cost-effective and sustainable (WestRasmus et al., 2012).

Given the success of the Promotora Model among Latinos, we took the model a step further in the PTA intervention by using it with Spanish-speaking mothers of children with ASD as a way to increase parents' knowledge about ASD and evidence-based practices (EBP), develop parents' advocacy skills and ability to navigate complex service and educational systems, and increase parental self-efficacy and use of EBPs.

RESEARCH QUESTIONS

This pilot study aimed to address the need for parent training interventions for Latino families of children with ASD by examining the feasibility, acceptability, and preliminary outcomes of the PTA intervention through the following research questions:

(1) Is PTA feasible as measured by successful implementation, recruitment of participants, and retention of participants throughout the program?
(2) Is PTA acceptable to participants as measured by their levels of satisfaction, social validity, and focus group responses?
(3) Are there differences between pre- and posttest on family and child outcomes?

METHODS

Participants, Settings, and Design of the Intervention Program

Parents

Our goal for the pilot study was to recruit 20 mothers. Criteria for study participation included being of Latin American descent, a native Spanish speaker, and a mother of a child between the ages of 2 and 8 years old who had a diagnosis of ASD. This pilot study focused on mothers because culturally, it would not be appropriate for women to visit men in their homes, mothers are generally the main caregiver, and it was a small pilot sample. We encouraged fathers to be present if they wished; however, we only conducted the pre- and posttests with the mothers for the sake of consistency. We used the ages of 2–8 years old for the child as criteria because autism is not typically diagnosed before 2 years old and is often diagnosed up to 8 years old, particularly for Latinos (Mandell et al., 2009). The CBO that helped us develop the program had a Spanish-speaking support group for parents of children with ASD and advertised the study to families in their support group and also to other families seeking services. They used face-to-face recruitment along with a flyer developed for the study and approved by the Institutional Review Board (IRB). Twenty-two Spanish-speaking mothers consented to participate in the study and from the 22, 19 completed Module I and 14 completed Module II. Table 2 summarizes the demographics of mothers who completed Module I and their children.

Table 2

Participant Demographics

	Module I (n = 19)
Child	
Mean age	5.78 (*SD* = 1.59)
Male	89.50 (n = 17)
U.S. Born	100%
Maternal	
Mean age	33.16 (*SD* = 6.02)
Ethnicity	
Mexican/Mexican American	84.25 (n = 16)
Puerto Rican	5.30 (n = 1)
Other Latino	5.30 (n = 1)
Latino/Non-Latino	5.30 (n = 1)
Place of Birth	
Latin American country or territory	94.73 (n = 18)
United States mainland	5.27 (n = 1)
Years in the United States	11.83 (*SD* = 4.32)
Educational Level	
Less than HS grad	68.40 (n = 13)
HS grad/GED	15.80 (n = 3)
Graduate Degree	15.80 (n = 3)
Income	
0–9,999	26.30 (n = 5)
10,000–19,999	52.70 (n = 10)
20,000–29,999	21.1 (n = 4)
Employed	15.80 (n = 3)
Married or Living with Partner	78.90 (n = 15)

Note. Child Gender and Place of Birth, Mother's Ethnicity, Place of Birth, Educational Level, and Income reported in percentages.

Promotoras

The criteria for being a promotora in the study was to be a mother of child with an ASD or similar developmental disability, have Spanish as their primary language, and be identified by the CBO as having leadership qualities. We did not require that they have professional training or a specific educational background other than to be fluent in reading, writing, and speaking Spanish. Three promotoras were selected to participate in the study by the CBO (described below). Two had children with an ASD and one had a child with an intellectual disability and was currently worked with families of children with ASD. A total of about 48 hours of training were provided to the promotoras for both modules. Manual content and materials were presented, discussed, and role played. Promotoras were given the same pre- and posttest that participants received, at the beginning and end of the training. Promotoras received research training according to Institutional Review Board standards, and were added to the IRB protocol as interventionists.

Settings

The promotora trainings and coordination of the project took place at the CBO site that was near the Latino neighborhood of a midsized Midwestern city. The CBO has bilingual staff members and a support group conducted in Spanish for parents of children with an ASD. All parent education sessions were provided face to face in the family's home each week.

Design of the intervention program

We developed PTA using a community-based approach, partnering with a CBO that provides parent training to families of children with disabilities and has been successful working with Latino families as part of their mission. We first formed an advisory committee that gave input on the development of the manual and protocol based on the Ecological Validity Framework (see Table 1). The advisory committee consisted of Latino parents of children with ASD, a developmental pediatrician and a social worker who worked with Latino families of children with ASD, staff from our CBO, an educational consultant who has written and developed materials for Spanish-speaking families, and study staff. The consultant, the PIs, and graduate students, who incorporated input from the advisory committee, wrote the intervention manuals.

We developed two consecutive 8-week modules. The content of the modules were developed based on reviews of the empirical and professional literature bases, the combined clinical expertise of our study team, and the feedback of the advisory board. The focus of Module I was to provide parents with basic information about autism, advocacy, and navigating the system and included the following content: (1) Introduction to the program; (2) Understanding the development of social skills, play skills, and communication in young children; (3) Recognizing the signs and symptoms of ASD, dispelling myths, and understanding the meaning of diagnostic criteria for ASD; (4) Learning where to go and how to advocate for diagnosis, supports, and community services; (5) Learning how to advocate for your child in the school system; (6) Explaining autism and your child's behavior to others and building social support; (7) Taking care of yourself (reducing stress and recognizing signs of depression); and (8) Sustaining growth and learning and posttest.

The focus of Module II was to provide parents with information about evidence-based interventions, and to provide instruction on intervention strategies parents can use to improve their child's communication, social and play skills, and strategies to decrease problem behaviors. This module also consists of eight sections: (1) Introduction and overview; (2) Learning about research-based interventions for children with ASD; (3) Strategies to encourage your child to communicate; (4) Strategies to improve your child's play skills; (5) Strategies to improve your child's social skills; (6) Understanding reasons for problem behavior; (7) Preventing and addressing problem behavior; (8) Looking ahead and posttest.

We created two sets of manuals for each module, one for the promotoras and the other for participating parents. The promotora manual included instructions and guidance for the promotora as well as the content to be covered. These manuals are available by request from the first author. The intervention was delivered through weekly home visits by promotoras who were also Latina mothers of children with ASD.

The study included a mixed-methods approach including one group pre- and posttest design, and focus groups held with participants after each intervention module.

Intervention Procedures

The promotoras conducted eight home visits to share intervention content with participating mothers. Promotoras administered the informed consent and pretest to each participant in the first home visit. They then scheduled seven subsequent visits at weekly intervals. Home visits lasted approximately 2 hours and consisted of (a) a warm greeting and review of the previous week's content with opportunities for the parent to ask questions and share their experiences over the past week; (b) completion of an anchoring activity (e.g., listening to a short simulated radio program or viewing a short video illustrating concepts or practices); (c) didactic teaching of new content; and (d) wrap up visit with plan for next week and review of activities for the parent to attempt between visits (i.e., homework assignments). Although children were not part of the home visit sessions, the homework assignment often asked parents to practice targeted strategies with their children on their own during the week. Application activities (e.g., role playing, terminology matching games) were included alongside each session to offer mothers the chance to apply their new knowledge. The intervention manual was available during all visits to facilitate discussion and guide content delivery. The participants were given a shorter version of the manual that included all content and exercises but excluded instructions to promotoras. The posttest was administered during the last home visit. The promotoras were monitored and provided with feedback between each session by a project coordinator through weekly telephone calls which served as a way of monitoring fidelity to the protocol. After all participants completed each module, the project coordinator facilitated focus groups with the participating mothers using an interview guide that asked for comments about the program and probed about specific content within each module and how they viewed the promotora model. Focus groups of 3–6 participants at a time were held at the CBO site and were digitally recorded with the permission of participants. Three focus groups were held in total. The interview guide is available by request from the first author.

Measures

Module I measures included knowledge about autism; family outcome survey; caregiver appraisals including caregiver burden, satisfaction, and efficacy; and caregiver depressive symptoms. All measures are parent report measures (limitations of this are discussed in the limitation section under discussion).

Knowledge about autism

The Maternal Autism Knowledge Questionnaire was used (Kuhn & Carter, 2006). The measure includes 41 true/false questions regarding facts about autism diagnosis and etiology, symptoms, treatments, and interventions. Correct responses were counted for a total score. Items were translated into Spanish using the forward-back translation method by our research team. This method involves having one fully bilingual person translate the instrument from English to Spanish, and a different fully bilingual person translate the Spanish version back to English. The two versions were then compared by the PI who is bilingual and discrepancies were discussed and resolved by the bilingual team including the two translators and the PI.

Family outcome survey-revised

The family outcome survey-revised (FOS) is a 24-item self-report instrument designed to gather information on a family's strengths and needs to support early intervention programs for children with disabilities and their families (Bailey, Hebbeler, Olmstead, Raspa, & Bruder, 2008). The instrument assesses five family outcomes using a 5-point Likert scale ranging from (1) not at all to (5) completely. The FOS was previously translated and used in Spanish by Olmsted et al. (2010). Olmsted et al. found two of the subscales to have Cronbach's alphas ranging between .80 and .63 with a Spanish-speaking sample. The five family outcome subscales (with sample items in parentheses) used in this study included: (a) understanding your child's strengths, needs, and abilities (e.g., we understand our child's strengths and abilities); (b) knowing your rights and advocating for your child (e.g., we know our rights related to our child's special needs); (c) helping your child develop and learn (e.g., we are able to help our child learn new skills); (d) having support systems (e.g., we have friends or family members who listen and care); and (e) accessing the community (e.g., our child's care needs are met). Items were summed within each of the five scales for five individual subscale scores, and all items were summed for the overall family outcomes scale. Cronbach's alphas for the individual scales for the present study were .63, .82, .84, .88, and .82 respectively; and .94 for all 24 family outcome items.

Caregiver burden, satisfaction, and efficacy

These were measured by a scale adapted by Heller, Miller, and Hseih (1999) that has 20 items and three subscales using a 4-point Likert scale with response categories ranging from (1) strongly disagree to (4) strongly agree. The items were translated into Spanish and back-translated by the study team. Caregiver burden included nine items about the effects of caregiving for a child with autism on job opportunities, finances, future worry, personal time, social opportunities for leisure, and the caregiver's marriage (sample item: caring for my child places a financial strain on my family). Caregiver satisfaction includes five items about the caregiver-child relationship (e.g., helping my child helps me feel close to him/her). Caregiver efficacy is comprised of six items that were developed to assess caregiver efficacy in parenting a child with a developmental disability (e.g., I feel I can manage my child's behavior). Items within each subscale were summed; a higher score indicated higher levels of caregiver satisfaction, efficacy and burden. Cronbach's alphas for each of the subscales for the present study were .88 for caregiver burden, .76 for caregiver satisfaction, and .78 for caregiver efficacy.

Depressive symptoms

Thse were measured with the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977). The CES-D consists of 20 items that rate the frequency of depressive symptoms over the last week. A 4-point Likert scale was used with possible responses ranging from (1) rarely to (4) most of the time. Respondents are asked each item with respect to how often they felt or behaved this way during the past week. Sample items include, "I was bothered by things that don't usually bother me," and, "I thought my life had been a failure." There were four items that were framed in the positive (e.g., I felt hopeful about the future) and were reversed coded, then all items were summed for a total score. A higher score suggests higher levels of depressive symptoms. The CES-D was previously translated into Spanish. Cronbach's alpha reliabilities have ranged .88–.89 among caregivers of children with developmental disabilities (Magaña, 1999; Magaña & Smith, 2006). The Cronbach's alpha in the present study was .88.

Module II measures included efficacy in use of targeted strategies, self-reported use of targeted strategies, severity of autism symptoms, child problem behavior, and social validity of the intervention strategies. Similar to Module I measures, all Module II measures are based on parent report.

Efficacy in using the intervention strategies

This was measured by 10 items created by the research team. The items were designed to assess caregiver *efficacy in the use* of strategies taught in Module II. Sample items include, "I feel confident setting the stage for learning for my child" and "I understand the purpose of antecedents/behavior/consequences (ABC) chart." A 4-point Likert scale was used with positive responses ranging from (1) strongly disagree to (4) strongly agree. Items were summed and higher scores suggest higher levels of efficacy in using the strategies. The items were translated and back-translated by the study team. For this sample the Cronbach's alpha was .92.

Use of intervention strategies

This was based on 14 items developed by the research team to assess how often caregivers *used* the intervention strategies targeted in Module II. The items were translated and back-translated by the research team. A 4-point Likert scale was used with responses ranging from (1) never to (4) always. Sample items include, "How often do you immediately reward your child for positive behaviors?" and "How often do you use modeling to show your child what you want him/her to do?" Higher scores indicate increased frequency of use. The Cronbach's alpha for this measure was .91.

Severity of autism symptoms

This was measured by the Autism Behavior Checklist (ABC; Krug, Arick, & Almond, 1993). The ABC is a 57-item behavior rating scale with the ability to inform diagnosis of ASD by determining the probability of diagnosis in children. Respondents report on whether the symptom is present or absent. A prevalidated Spanish version of the ABC, the Inventario de Comportamentos Autísticos (ICA; Marteleto & Pedromônico, 2005), shown to have high specificity and sensitivity, was used. Five domains of behavior are included: sensory (resists being touched or held), relating (has no social smile), body concept (whirls self for long periods of time), language (has pronoun reversal—you for I, etc.), social (repeats phrases over and over), and self-help (has difficulties with toilet training). Items are weighted and then summed. Higher scores for each domain indicate elevated severity of symptoms. Higher total ABC scores indicate increased likelihood of ASD diagnosis. Child problem behavior was assessed by the Scales of Independent Behavior Revised (SIB-R; Bruininks, Woodcock, Weatherman, & Hill, 1996). The SIB-R includes eight categories of behavior problems divided into three domains: internalizing (hurtful to self, unusual or repetitive habits, withdrawal or inattentive behavior), externalizing (hurtful to others, destructive to property, disruptive behavior), and asocial behavior (socially offensive behavior, uncooperative behavior). Items were dichotomous with response categories: (1) manifested over the last 6 months, or (0), not manifested. The manifested behaviors in each of three subscales and the total scale were counted. The SIB-R was previously translated into Spanish and used in studies of Latino populations (Blacher & McIntyre, 2006).

The social validity of intervention strategies

This was adapted from the Treatment Acceptability Rating Form (TARF; Reimers & Wacker, 1988) to reflect a home visiting, psycho-educational curriculum for the present study. The resultant adapted measure is a 15-item, social validity questionnaire completed by the respondent at the end of Module II. The scale assesses parents' perceptions regarding the acceptability and feasibility of intervention strategies in Module II, the effectiveness of the intervention strategies in changing their child's behavior, and the applicability of the intervention strategies for use by other families. Response categories range from (1) strongly disagree to (6) strongly agree. Items were translated and back-translated by the research team. Social validity was assessed during the posttest of Module II. Each item was examined separately.

Data Analysis

To assess the feasibility of PTA the number of weeks participants were involved in the intervention and the retention rates for each module were calculated. The acceptability of PTA was measured based on social validity, and focus group responses. Paired t-tests were used to test for pre-post differences in each of the aforementioned Module I and Module II measures. Cohen's d was used to indicate effect sizes for each of the pre- and posttest outcomes. Cohen's d was calculated using Morris and DeShon's (2002) equation 8 that corrects for dependence between means. The magnitude of the effect sizes was interpreted based on recommendations of Cohen (1988) which indicate .20 as a small effect size, .50 moderate, and .80 large.

The content of the focus groups was digitally recorded, transcribed, and translated into English. The data were analyzed using Saldaña's (2013) two-cycle coding process. The first cycle included initial coding and evaluation coding (Rossman & Rallis, 2003) whereby independent review of the transcripts was conducted by two of the authors to identify themes and working definitions related to satisfaction and acceptability of the intervention. The reviewers then met to come to agreement on themes and working definitions. The second cycle involved a second independent review by these authors to further develop the themes. Coding ceased when saturation was met, that is when reviewers agreed that no new themes were emerging from the data (Strauss & Corbin, 1998). The two reviewers held a final meeting to determine agreement on themes and overall coding.

RESULTS

Feasibility of PTA

The CBO recruited and enrolled a total of 22 Latina mothers of children with ASD. Three participants did not complete Module I resulting in a retention rate of 86.4%. All of the other mothers (*n* = 19) completed all eight of the Module I sessions. One mother left the study for undisclosed reasons after the fifth session. Two other mothers dropped after the second session due to extensive family issues and time constraints. Module II was presented as optional for those who participated in Module I. Of the 19 mothers who participated in Module I, 16 enrolled in Module II (84%). Of these 16, 14 mothers completed Module II (87.5% retention rate). All 14 mothers completed all of the eight sessions for Module II. Participants who did not choose to complete Module II cited time constraints.

Acceptability of PTA

With respect to focus group results, 12 of 19 participants participated in the Module I focus group; and 6 of 14 participated in the Module II focus groups. Two of the themes that emerged from Module I were the importance of the promotora as an experienced role model and the importance of conversational dialog between promotora and participant. Participants described how the promotoras gave examples of their own experiences of having a child with autism. One participant said, "it makes you stronger than before talking to others who have the same problems. It gives you hope to keep fighting for your child." The promotoras created a nonjudgmental space that made the participants feel welcomed. The participants indicated appreciation for how the promotoras developed an empathetic relationship with them. One participant stated, "It was then that I realized that the promotora was by my side. It was like she came with me and took me by the hand so I was ready to learn." These findings are consistent with previous research about the value of promotoras in intervention work (Williamson, Knox, Guerra, & Williams, 2014) as well as work on the utility of cultural adaptations in parent training interventions (Ortiz & Del Vecchio, 2013). Themes relating to the content provided were 1) the value of knowledge gained on knowing your rights and building advocacy skills, 2) understanding your child's diagnosis, and 3) communicating with others. Participants stated that they did not understand what their rights were before the intervention. Instead they were afraid of being a nuisance, assumed their child's needs were obvious, or just appreciated what was provided. In reference to the school special education process, one mother said, "Now I know that I have the right to demand the rights my child is entitled to." Participants discussed the importance of understanding what autism is and explaining it to family members, "I explained everything I learned in the program to my family so they can better help me with my child."

In the Module II focus groups, participants were asked what strategies they found most useful. Several participants highlighted the use of social narratives, activity schedules, and strategies for reducing problem behaviors. These findings are not surprising as problem behaviors are a major source of stress for parents (Lecavalier, Leone, & Wiltz, 2006). Participants commented positively on the persuasion of the promotoras in completing application assignments, the flexibility of the home visit process, the use of video clips to illustrate intervention procedures, and the instructional format that allowed promotoras to share their own experiences.

The social validity questionnaire was used at the end of Module II to assess the acceptability of Module II strategies. Items from the social validity questionnaire (n = 14) indicated high favorability of the intervention. On a 6-point scale, mothers responded positively (M = 6, SD = .00) about the acceptability of the intervention strategies for their child's learning needs and behavior problems, parent willingness to carry out the strategies, confidence that the strategies would be effective for their child, belief that the strategies may produce permanent improvements in their child's behavior, the likability of the strategies, the likelihood of the strategies teaching their child appropriate behavior, and the fit of the intervention strategies with their goals to improve their child's behavior. Scores were high on the acceptability of the amount of time needed to implement the strategies (M = 5.57, SD = 1.16), willingness of other household members to carry out the strategies (M = 5.93, SD = .27), caregiver willingness to change routines to carry out strategies (M = 5.93, SD = .27), and the fit of the strategies with family needs (M = 5.93, SD = .27). Participants were more likely to disagree with statements pertaining to adverse outcomes of the intervention including expectations of disadvantages of the strategies (M = 2.57, SD = 1.89), disruption to home life from intervention strategies (M = 2.07, SD = 1.77), undesirable intervention effects (M = 2.14, SD = 1.67); however, they slightly agreed with the statement that the child would experience discomfort resulting from the intervention (M = 3.86, SD = 2.14).

Changes Between Pre- and Posttest

Module I results

Paired sample t-tests were used to compare outcome variables for Module I and II parent and child outcome variables. Analyses for Module I outcomes are illustrated in Table 3. For the parent outcome of caregiver knowledge of autism, mothers reported significantly greater knowledge about autism over time. Cohen's effect size value (d = .75) suggested a moderate to large effect. Significant increases in the FOS subscales and the overall score from pre- to posttest were observed. Mothers reported that greater understanding of their child's needs and strengths over time, enhanced knowledge of their rights and how to advocate for their child, better information about how to help their child develop and learn, increased knowledge of support systems, and greater access to the community. Overall scores on the FOS increased significantly from pre- to posttest. All effects sizes for the scale exceeded 0.95, suggesting large effects. No significant differences were found between pre- and posttest for caregiver efficacy, maternal depression, caregiver burden, or caregiver satisfaction in Module I.

Module II results

The results for Module II on parent and child outcomes are shown in Table 4. Mothers reported a significant increase in the parent outcome, Efficacy in the Use of Strategies.

Table 3

Module I Means, Standard Deviations, T*-test, and Cohen's* d *for Outcome Variables (*n = *19)*

	Pre		Post				
	M	***SD***	***M***	***SD***	***t***	***p***	**Cohen's *d***
Knowledge about autism**	17.89	2.54	20.42	2.83	3.23	.005	0.75
Understanding child's strengths & needs***	8.37	3.02	14.00	1.63	9.05	.000	2.31
Accessing the community***	13.32	6.49	19.37	3.59	4.46	.000	1.12
Helping your child develop and learn***	8.89	4.04	13.26	3.07	4.81	.000	1.2
Knowing your rights***	9.00	5.67	17.11	2.40	6.15	.000	1.84
Having support systems***	9.42	6.18	15.37	3.65	4.29	.000	0.95
Total score family outcomes***	49.00	21.25	79.11	8.50	6.99	.000	1.75
Caregiver Burden	14.05	7.76	15.95	5.12	1.06	.305	0.25
Caregiver Efficacy	12.63	4.07	13.95	2.46	1.50	.150	0.37
Caregiver Satisfaction	12.74	2.64	12.63	2.11	0.20	.846	−0.05
Depressive symptoms	25.47	13.79	24.21	15.65	0.37	.715	−0.09

Note. Cohen's *d* effect sizes are based on Cohen (1988) that designates 0.20 as a small effect, 0.50 moderate, and .80 large; $p < .05$; $^{**}p < .01$; $^{***}p < .001$.

Table 4

Module II Means, Standard Deviations, T*-test, and Cohen's* d *for Outcome Variables (*n = *14)*

	Pre		Post				
	M	***SD***	***M***	***SD***	***t***	***p***	**Cohen's *d***
Efficacy in use of strategies**	18.86	6.80	26.07	3.97	4.10	.001	1.17
Use of Strategies	27.57	8.62	29.14	6.02	0.88	.396	0.25
ABC Sensory	10.57	7.22	11.14	6.68	0.29	.773	0.08
ABC Relating	19.79	7.20	18.07	6.20	0.73	.476	−0.20
ABC Body Use	15.29	7.72	13.79	9.40	0.70	.499	−0.19
ABC Language*	17.29	7.60	13.36	8.24	2.25	.042	−0.61
ABC Social & Self-Help	16.93	6.27	13.71	4.87	1.85	.087	−0.50
Total ABC	79.86	25.49	70.07	26.16	1.51	.154	−0.41
SIB-R Internalizing Behavior	1.29	0.99	1.43	1.09	0.81	.435	0.21
SIB-R Externalizing Behavior	0.57	0.94	0.79	1.05	1.00	.336	0.28
SIB-R Asocial Behavior	0.79	0.8	0.57	0.76	0.90	.385	−0.25
SIB-R Total Behavior Problems	2.64	2.24	2.79	2.33	0.30	.770	0.08

Note. ABC = Autism Behavior Checklist; SIB-R = Scales of Independent Behavior Revised; Cohen's *d* effect sizes are based on Cohen (1988) that designates 0.20 as a small effect, 0.50 moderate, and .80 large; $^{*}p < .05$; $^{**}p < .01$.

The Cohen's effect size value for efficacy $d = 1.17$ indicated a high practical significance. There were no significant differences in the Use of Strategies measure.

For child outcomes, only scores on the Language subscale of the Autism Behavior Checklist (ABC) were significantly reduced (indicating lower impairment on language use) from the pre- to posttest. A moderate Cohen's effect size value was found for the change in Language. No significant differences were found for the severity of the other ABC subscales or for the maladaptive behaviors (SIB-R) sub and overall scales.

DISCUSSION

The findings of the current study extend previous studies evaluating interventions for Latina mothers of children with autism by demonstrating that a culturally informed intervention (PTA) specific to Latino families of children with ASD has the capacity to enhance caregiver knowledge of autism, develop caregiver advocacy knowledge, and improve caregiver efficacy in addressing their child's social communication skills. We developed a parent education intervention implemented by Latina promotoras who were mothers of children with ASD and examined the feasibility, acceptability, and preliminary effectiveness of the intervention among 19 Latina mothers of young children with ASD. Our findings from social validity surveys and focus groups suggest that participating families found the intervention goals, procedures, and outcomes reasonable and acceptable. In addition, for the majority of participants, everyday circumstances did not hinder participation. The retention rates for both modules exceeded the average retention rates found in other parent training programs utilizing the promotora method (Ayala et al., 2010). This may be due to the home visit approach used in this intervention. This approach allowed the promotoras to reschedule any cancelled appointments at the convenience of both the promotora and the participant. Therefore, participants were able to receive all of the content. This approach also removed barriers such as transportation and child care, which may have contributed to the higher retention rates.

Regarding changes in targeted maternal and child outcomes, we found significant differences in maternal knowledge about autism and between pre- and posttests on all subscales of the FOS including understanding your child's strengths and needs, accessing the community, helping your child develop and learn, knowing your child's rights, and having support systems. Effect sizes suggest the intervention had high practical significance for parents. Furthermore, the effect sizes exceeded those found in other parent training studies of immigrant Latina mothers and their children utilizing promotoras (Williamson et al., 2014). With respect to child outcomes, there was a significant improvement between pre- and posttest in language impairment.

Despite these initial findings suggesting the use of promotoras to deliver parent education may benefit Latino parents and their children with autism, there are several considerations that require further research. Surprisingly, we found a small effect size for increased levels of caregiving burden between pre- and posttest. This small increase in burden may be the result of increased knowledge about activities that parents should engage in with their child. They may initially be more burdened in attempting to implement new strategies that increase their focus and workload. We know relatively little about the impact of parent participation in intervention programs for children with autism on family functioning (Grindle, Kovshoff, Hastings, & Remington, 2009), but the results of studies examining the impact of parent involvement in comprehensive early intensive behavioral intervention (EIBI) suggest that the benefits of parent participation may outweigh the addition of stressors (Hastings & Johnson, 2001). Nevertheless, future research should closely examine the cost-benefit ratio for parents participating in interventions like PTA.

Similarly, we found a small effect size for increased internalizing and externalizing behaviors, and decreased asocial behaviors. In part, increased parent report of these behaviors may be reasonably explained by improved parent knowledge and thus increased awareness of characteristics of autism and appropriate social emotional development as a result of participating in the intervention. In addition, we know that problem behaviors may worsen as the child contacts reinforcement that maintains and strengthens the behavior. Families of children who engage in problem behavior will require additional support to identify the function (or reason) of their child's behavior and develop effective ways to respond. Future rigorous experimental evaluations of PTA should include behavioral observation measures of parent child interactions to assess the impact of the psycho-educational intervention on parent use of targeted strategies with their child and the effects of parent-implemented intervention on child problem and adaptive behaviors.

Finally, for Module II, we examined parental efficacy in use of strategies and actual use of strategies, as well as child outcomes. Mothers reported greater confidence in their ability to use the strategies taught in the intervention. The mothers' increased efficacy suggests they will be more involved in developing their child's skills and managing their child's behaviors (Hastings & Brown, 2002; Jones & Prinz, 2005). However, we did not find a significant increase in mothers actually using strategies taught in the intervention, according to their own report. On the basis of the results of parent-mediated intervention for children with autism, we anticipate that parents' acquisition and sustained use of targeted intervention strategies will require additional support including practice based coaching and performance feedback, and ongoing treatment fidelity assessment (Oono, Honey, & McConachie, 2013). Future research should evaluate the utility, acceptability, and effects of a psycho-educational parent education program like PTA combined with the coaching and ongoing support we anticipate parents will require to effectively use strategies with their child.

This early exploratory study has several limitations. The small sample size limits the ability to detect effects and the generalizability of the study, and the absence of a control group and randomization limits internal validity of the intervention. Another limitation is that all of the measures were parental reports which were not verified by an objective measure. This could introduce bias in the outcome measures. Related to this, the lack of fidelity of implementation measures for assessing the degree to which promotoras implemented the intervention as intended limits the confidence with which we can say that PTA is the mechanism of pre-posttest change in measured outcomes. Future iterations and experimental evaluations should assess both the fidelity of intervention (i.e., parent use of targeted strategies during home visits) and the fidelity of implementation (i.e., promotora use of parent education and coaching strategies and family-centered practices during home visits).

This paper describes the process of developing a culturally based intervention and the acceptability and feasibility of the intervention as tested in a pilot study. The results indicate that the intervention is promising as a parent education intervention for Latino immigrant families of children with ASD. We found that mothers increased their knowledge of ASD, their ability to help their child, and their efficacy in use of evidence-based strategies. This intervention may contribute to reducing service disparities among Latino children with ASD and could contribute to longer term outcomes for these children. A randomized trial is needed to test the efficacy of the intervention.

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