FOCUSED QUESTION

1. Do children receiving the Qigong Sensory Training (QST) Home Program improve in the classroom setting on measures of autistic behavior as evaluated by preschool teachers blind to the group? Do they improve in the home setting on measures of autism and sensory and self-regulation as reported by their parents?

2. Do children in the Home Program and the Dual Program experience equivalent outcomes on measures of autism and sensory and self-regulation?

3. Are there differences in outcomes between the Dual Program and Home Program interventions relative to the severity of autism and the severity of parent stress?


CLINICAL BOTTOM LINE:

A Qigong Sensory Training Home Program is an effective parent-delivered intervention for children with autism. Results show an improvement in autism and sensory and self-regulation as evaluated by both the teacher and the parents.

RESEARCH OBJECTIVE(S)

List study objectives.

- Evaluate how the parent-delivered component on the Qigong intervention affects treatment outcomes.
- Investigate the correlation between changes in sensory and self-regulation and changes in autistic behavior.
- Investigate whether the training and support program are adequate for parents to continue with the intervention at home.
- Investigate whether the home program is effective enough to be used rather than the dual program.

DESIGN TYPE AND LEVEL OF EVIDENCE:

Level I: Randomized controlled trial

Limitations (appropriateness of study design):

Was the study design type appropriate for the knowledge level about this topic? Circle yes or no, and if no, explain.
YES/NO: Yes. Prior research showed benefits of Qigong massage in increasing behavioral, social, and language learning, decreasing sensory impairment, and improving self-regulation in children with autism.

SAMPLE SELECTION
How were subjects selected to participate? Please describe.

Participants were recruited through local state-funded early intervention programs in Salem and Portland, Oregon. Parents of 3- to 6-year-old children with autism who receive services through these programs were sent invitations. Of those that agreed, the children were randomized using a random number generator into the treatment condition and the wait-list control group.

Inclusion Criteria

- Children < 6 years of age
- Receive early intervention services for autism

Exclusion Criteria

- Children with complicated medical diagnoses
- Children taking chronic medications, including medical therapy for autism (e.g., chelation)
- Child will not begin any additional services or programs for autism during study period

SAMPLE CHARACTERISTICS

<table>
<thead>
<tr>
<th>N = 47</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Dropouts</td>
</tr>
<tr>
<td>#/ (%) Male</td>
</tr>
<tr>
<td>#/ (%) Female</td>
</tr>
<tr>
<td>Ethnicity</td>
</tr>
<tr>
<td>Disease/disability diagnosis</td>
</tr>
</tbody>
</table>

Check appropriate group:

<table>
<thead>
<tr>
<th>Group</th>
<th>20–50/study group ✓</th>
<th>51–100/study group</th>
<th>101–149/study group</th>
<th>150–200/study group</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;20/study group</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

INTERVENTION(S) AND CONTROL GROUPS

Add groups if necessary

Group 1: QST Home Program

<table>
<thead>
<tr>
<th>Brief Description</th>
<th>Parents completed a 3-hour training session with an experienced therapist in a home Qigong massage program to enable them to deliver the intervention to their child.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Setting</td>
<td>Family home</td>
</tr>
<tr>
<td>Who Delivered?</td>
<td>Parents of the child</td>
</tr>
<tr>
<td>Duration?</td>
<td>15 minutes daily</td>
</tr>
<tr>
<td></td>
<td>4 months</td>
</tr>
</tbody>
</table>
Group 2: QST Dual Program

| Brief Description                           | Parents were be trained by an experienced therapist in a home Qigong massage program to enable them to deliver the intervention to their child in in addition to the therapist providing the treatment and family support. |
| Setting                                    | Family home and clinic |
| Who Delivered?                             | Parents of the child and the therapist |
| Frequency?                                 | 15 minutes daily, 30-minute support meetings once weekly |
| Duration?                                  | 4 months; 7 weeks included support meetings |

Group 3: Wait-list Control Group

| Brief Description                           | No intervention was given initially until the end of the study. However, the child continued to receive services from the early intervention preschool program they attended while wait-listed. Once the QST intervention was given, the additional data were used as pooled data. |
| Setting                                    | No intervention delivered |
| Who Delivered?                             | No intervention delivered |
| Frequency?                                 | No intervention delivered |
| Duration?                                  | No intervention delivered |

Intervention Biases: *Circle yes or no and explain, if needed.*

Contamination

| YES/NO |  |

Co-intervention

| YES/NO | Parents agreed to not start additional treatments for the duration of the study. |

Timing

| YES/NO |  |

Site

| YES/NO |  |

Use of different therapists to provide intervention

| YES/NO | Different therapists were used to train the parents and the intervention was delivered to the children by different parents because it was a home-based program. |

MEASURES AND OUTCOMES

Complete for each relevant measure when answering the evidence-based question:

Name of measure, what outcome was measured, whether the measure is reliable and valid (as reported in article – yes/no/NR [not reported]), and how frequently the measure was used.
Autism Behavior Checklist (ABC)
- Outcome measured: Autistic behavior in the classroom within the five domains of sensory, relating, body and object use, language, and social and self-help
- Reliability and validity: Internal consistency $\alpha = .89$
- Frequency used: Used twice for pre- and posttest

Pervasive Developmental Disorders Behavior Inventory (PDDBI)
- Outcome measured: Social and language abilities, maladaptive behaviors
- Reliability and validity: Internal consistency $\alpha = .80-.98$ across domains and constructs
- Frequency used: Used twice for pre- and posttest

Sense and Self-Regulation Checklist
- Outcome measured: Sensory and self-regulatory symptoms
- Reliability and validity: Internal consistency $\alpha = .87$
- Frequency used: Used twice for pre- and posttest

Autism Parenting Stress Index
- Outcome measured: parent stress
- Reliability and validity: Internal consistency $\alpha = .83$
- Frequency used: Used twice for pre- and posttest

Measurement Biases
 Were the evaluators blind to treatment status? Circle yes or no, and if no, explain.

YES/NO  Yes, the teachers who evaluated the children were blind to both the treatment and control groups.

No, the parents were not blind to the treatment status when reporting their evaluations.

Recall or memory bias. Circle yes or no, and if yes, explain.

YES/NO  

RESULTS
List results of outcomes relevant to answering the focused question
Include statistical significance where appropriate ($p < 0.05$)
Include effect size if reported

When comparing the home program versus the control group, the effect size range depended on the measure. Effect size in this study was categorized as small ($\eta^2 = .01-.06$), medium ($\eta^2 = .06-.14$), and large ($\eta^2 > .14$). The teacher measure of the Autism Behavior Checklist ($p = .309$) resulted in a medium effect size. The parent measures of PDDBI Sensory ($p = .032$), Behavior ($p = .003$), the Autism Composite Score ($p = .004$), Sensory Impairment ($p = .001$), Self-Regulation Impairment ($p = .00002$), and Parent Stress ($p = .74$) had a large effect size. The parent measure of Language and Social Abilities ($p = .281$) had a small effect size. In addition, the sample size for the Teacher ABC and PDDBI was too small for the home program versus the sample size for the control group.

The effects of the Dual Program and the Home Program also were analyzed and
compared. The results showed that there was no real significance between the effectiveness of each of the treatments, with \( p \) values of .207 to .976 across the different measures.

Was this study adequately powered (large enough to show a difference)? *Circle yes or no, and if no, explain.*

**YES/NO**

Were appropriate analytic methods used? *Circle yes or no, and if no, explain.*

**YES/NO**

Were statistics appropriately reported (in written or table format)? *Circle yes or no, and if no, explain.*

**YES/NO** Tables were provided with \( p \) values for both the Home Program and Dual Program.

**CONCLUSIONS**

State the authors’ conclusions that are applicable to answering the evidence-based question.

The purpose of this study was to see whether a parent-delivered Qigong home program would be as effective as a dual program with therapist support. Training the parents would allow for less support and treatment from therapists and promote daily delivery of the intervention. This demonstrated that the program provided appropriate training for the parents to deliver the intervention properly and integrate into daily use. The home program was shown to be effective, despite the dual program having more power, in regards to the parent and teacher evaluations. Children with more severe cases of autism and their parents, who have increased stress, demonstrated greater outcomes on the study measures when provided with the dual program, which gave parents additional treatment and support sessions, rather than only the home program. The reverse was found for children with less severe cases, in which the home program was found to be more effective than the dual program. Limitations to this study were the small sample size as well as high male-to-female ratio of the participants. In addition, multiple therapists were used to train the parents in the home program, which could create bias.

This work is based on the evidence-based literature review completed by Trisha Patel, OTS, and Rondalyn Whitney, PhD, OTR/L, Faculty Advisor, University of the Sciences, Philadelphia, PA, USA.


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