Efficacy of Yoga in Improving Occupational Performance Among Children with Developmental Delays

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Introduction

- Yoga is an appropriate complementary occupational therapy intervention that can work to create and restore optimal occupational performance in a child's life (AOTA, 2014).
- Current research, although limited, has shown that yoga can be used for the pediatric population to improve endurance, sensory integration, regulation and attention, and coping and calming skills (Feeney & Moser, 2014; Williams, 2010).
- There is a lack of evidence regarding benefits of yoga interventions on primary and/or secondary complications of other diagnoses and to what extent yoga interventions can play a role in improving occupational performance of children (Archer, 2009; Young, Silliman-French, & Crawford, 2017).

The purpose of this research was to incorporate yoga as a complementary approach to occupational therapy interventions for children with various degrees of developmental delays, in order to determine whether there was an increase in occupational performance.

Methods

- This research was completed using experimental-type research with one-group, pre-test post-test design.

Participants

- Approval was granted to conduct the research from the University of South Dakota Institutional Review Board.
- Participants were included in this study if they were 18 years old or younger, experienced developmental delays that interfered with daily occupational performance, and were deemed medically stable per parent report.
- Five participants were involved in this study.

Measurements

- An intake questionnaire was provided to caregivers prior to assessments to better understand the needs and goals of the participants/caregivers.
- Canadian Occupational Performance Measure (COPM)
  - Individualized, semi-structured interview used to determine problem areas and satisfaction with occupational performance in areas of self-care, productivity, and leisure (Law et al., 2014).
  - All caregivers completed the COPM due to the young age of participants.
- Short Sensory Profile, Second Edition (SSP-2)
  - A 34-item questionnaire used to evaluate children's processing patterns for those aged 3:0 to 14:11 (Dunn, 2014).
  - Items determine scores for sensory processing threshold quadrants (low registration, sensory seeking, sensory sensitivity, or sensory avoiding) and areas of behavioral and sensory systems.
- Single-Leg Stance
  - Single-leg stance completed for three trials, bilateral averages calculated.
  - Due to patient ability and caregiver goals, only four participants completed this assessment.

Procedures

- 10 weeks: 1 week for pre-testing, up to 8 weeks for intervention, 1 week for post-testing.
- Individualized yoga sessions occurred one time per week, for 30-60 minutes each session.
- Structure of sessions: opening relaxation and breathing patterns, physical postures, deep relaxation, with or without guided meditation.
- Post-testing included all assessments completed during pre-testing, as well as a satisfaction post-survey to document participant/caregiver comments in regards to the participant performance, behaviors, and abilities throughout the program.

Results

- A paired samples t-test was conducted to compare means of pre- and post-test assessments to determine the effects of the yoga intervention.
- Significance level was set at .05.
- Qualitative data analyzed using written and verbal feedback from caregivers.

	Pre-Test		Post-Test			
Assessment Measurement	M	SD	M	SD	T-test	Significance
COPM Performance	3.79	1.17	6.07	1.59	-6.31	***.003***
COPM Satisfaction	4.49	1.85	7.35	2.77	-3.18	***.034***
SSP-2 Sensory Processing	78.20	20.03	77.00	18.61	.274	.797
SSP-2 Sensory Section	31.00	5.96	31.20	3.90	.090	.933
SSP-2 Behavioral Section	48.40	15.42	44.80	14.38	1.008	.371

"Coordination has been better," and, "We really saw an improvement in [child's] balance… [She] started skipping, hopping on one foot, and [her] overall balance really improved. [Child] has never done that before."

"Calming methods have improved with using breathing techniques," and child's "attention has been getting better."

"[Child] was more willing to try new foods during this study – especially right after yoga sessions," and, "[Child] is back to sleeping in her own bed."

Discussion

- Results indicate that occupational performance and satisfaction with performance can be improved with yoga therapy, however, yoga may not have an effect on the sensory processing patterns of children.
- Research into the COPM has indicated that a change of two points or greater in performance scores should be considered clinically important (Law et al., 2014). Participants experienced changes in occupational performance scores by two points or greater in the following areas:
  - Initiating independent play
  - Engaging in play
  - Initiating self-care tasks
  - Trying new foods
  - Balancing
  - Coordinating hand-eye skills
  - Performing during sporting activities
  - Handling loud and/or over-stimulating environments
  - Regulating behaviors
  - Attending to tasks
- Caregivers reported improvements in the ability of their child to better regulate, with one caregiver reporting that the child initiated breathing techniques and yoga poses when introduced to a new, unfamiliar environment for an overnight stay.
  - Yoga may lead to the development of biofeedback systems and increased self-regulatory behaviors.
- It is important to note that the SSP-2 is not an ideal assessment to measure progress (Dunn, 2014). Rather, the SSP-2 is geared toward the development of intervention plans to target the sensory processing issues (Dunn, 2014).
  - Further research may explore the effects of yoga therapy on sensory processing with use of assessments more tailored to repeated measurement, as well as interventions supported by a sensory integration theory.

Limitations:

- Small sample size.
- Each participant completed a different number of sessions, due to participant start date, illness, and inclement weather.
- All participants were engaging in typical therapies (i.e. occupational and speech therapy services, medication).
- One researcher completed all aspects of this research.

Implications

Research

- Research in all areas of yoga therapy needs to be completed to update the current available evidence.
- In order to determine whether or not yoga therapy is an effective means of intervention to improve occupational performance, more therapists should continue to implement similar research.
- It is recommended that research be completed looking into specific factors, such as balance, self-regulatory behaviors, and sensory processing patterns.

Practice

- With an increase in research, therapists can continue to provide evidence-based practice with the latest treatment approaches.
- Therapists can more accurately develop individualized approaches for each client using various components of yoga therapy.

Conclusion

- Regardless of disability or developmental levels, yoga appears to have a positive effect on a child's occupational performance and the satisfaction of caregivers with this performance.
- This research should bring awareness to the variety of benefits that may result from yoga therapy.
- This research also supports the use of yoga more frequently to address occupational performance issues in children receiving occupational therapy services.
- Now knowing a gap exists in research regarding yoga interventions for the pediatric population, other students and practitioners should feel encouraged to continue research into this area.

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