



Dance for Children with Neurodevelopmental Disorders



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Purpose

Motor impairments are prominent in individuals with autism spectrum disorder (ASD) [1] and other neurodevelopmental disorders (NDDs), and these impairments often impact the individual's ability to engage in organized physical activity (OPA) programs. While many studies have identified dance and creative movement to be retrospectively and anecdotally therapeutic [2], there remains a paucity of literature regarding outcomes associated with these programs, and specifically their impact on (1) perceived and objective gross motor skills, (2) self-efficacy or the perceived ability to accomplish both related (movement) and unrelated (academic or social) goals, and (3) quality of life for affected individuals and their caregivers. This study is designed to measure the impact of organized dance classes across these three domains.

Study Design

This study is a prospective randomized controlled study with a waitlist control. Participants include 34 children (ages 4-16 years) with NDDs and their caregivers. Outcome measures consist of caregiver surveys, direct questionnaires, and remote direct assessments conducted pre and post intervention. The intervention consists of either a wait period or a series of ten weekly 1-hour dance classes held virtually via Zoom due to the COVID-19 pandemic.

Group A



Group B



Intervention

The Expressive Movement Initiative (EMI) at UCLA is a dance program for children with developmental disabilities run by undergraduate students at UCLA. The program pairs dancers 1-to-1 with a dedicated volunteer teacher who modifies the instructions or challenges their student in a way that is appropriate for their given developmental and ability level. A typical class consists of the following core components:

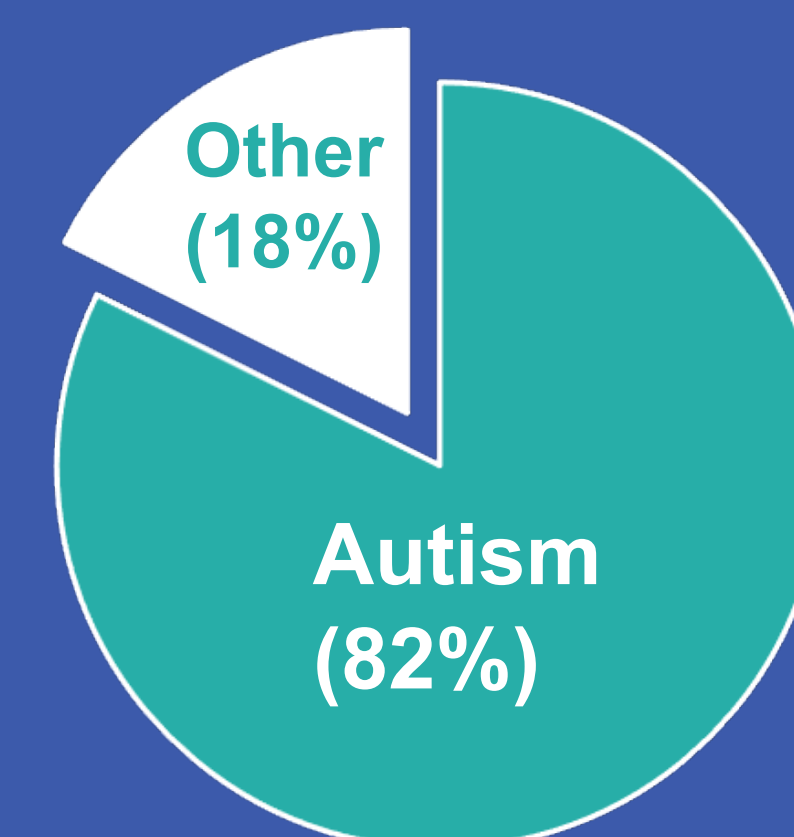
- 1) Warm-up
- 2) Across-the-floor
- 3) Challenges
- 4) Aerobics
- 5) Combination
- 6) Games
- 7) Wrap-up

Please visit www.emiucla.org for more information.

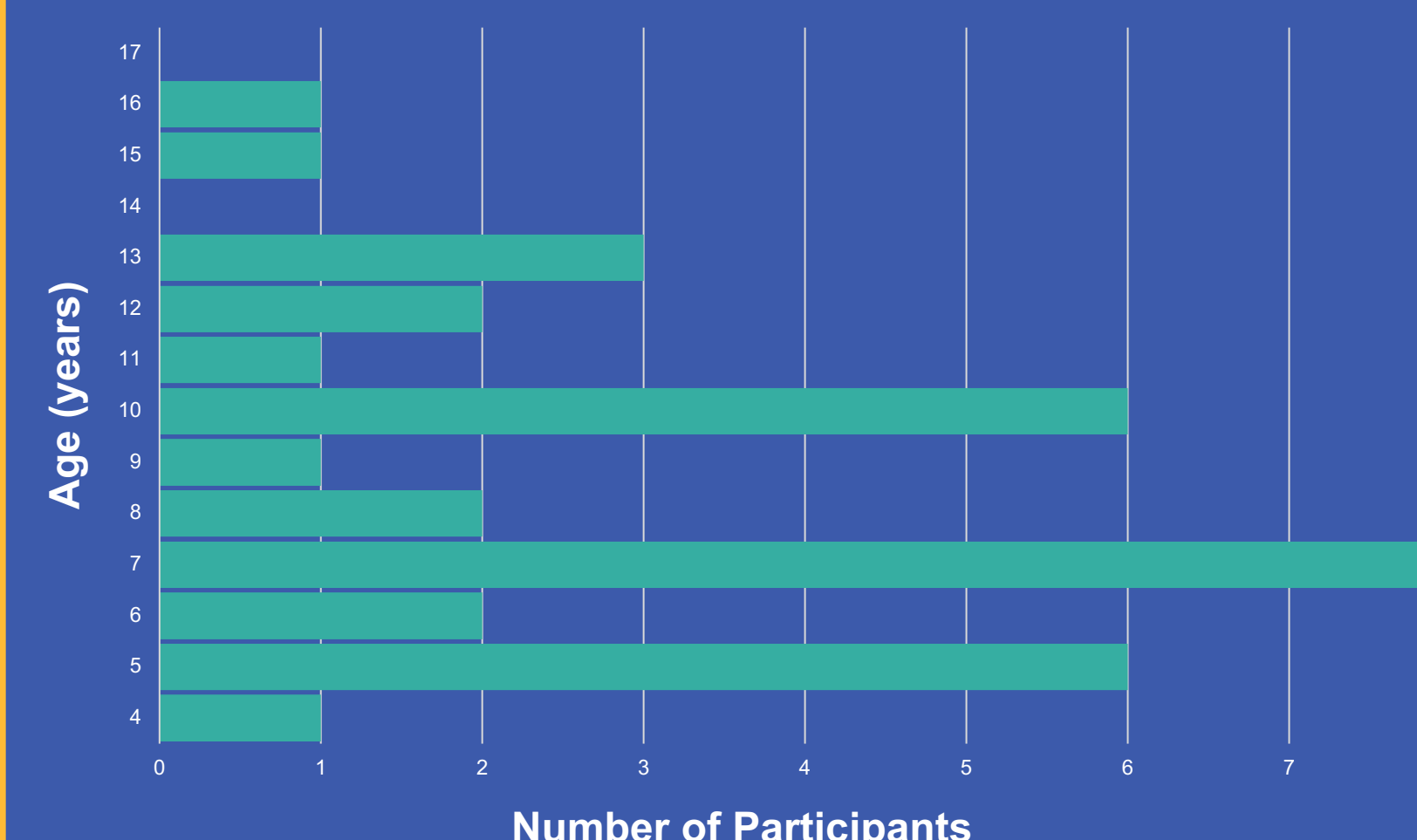
Figures/Photos

Participant Data

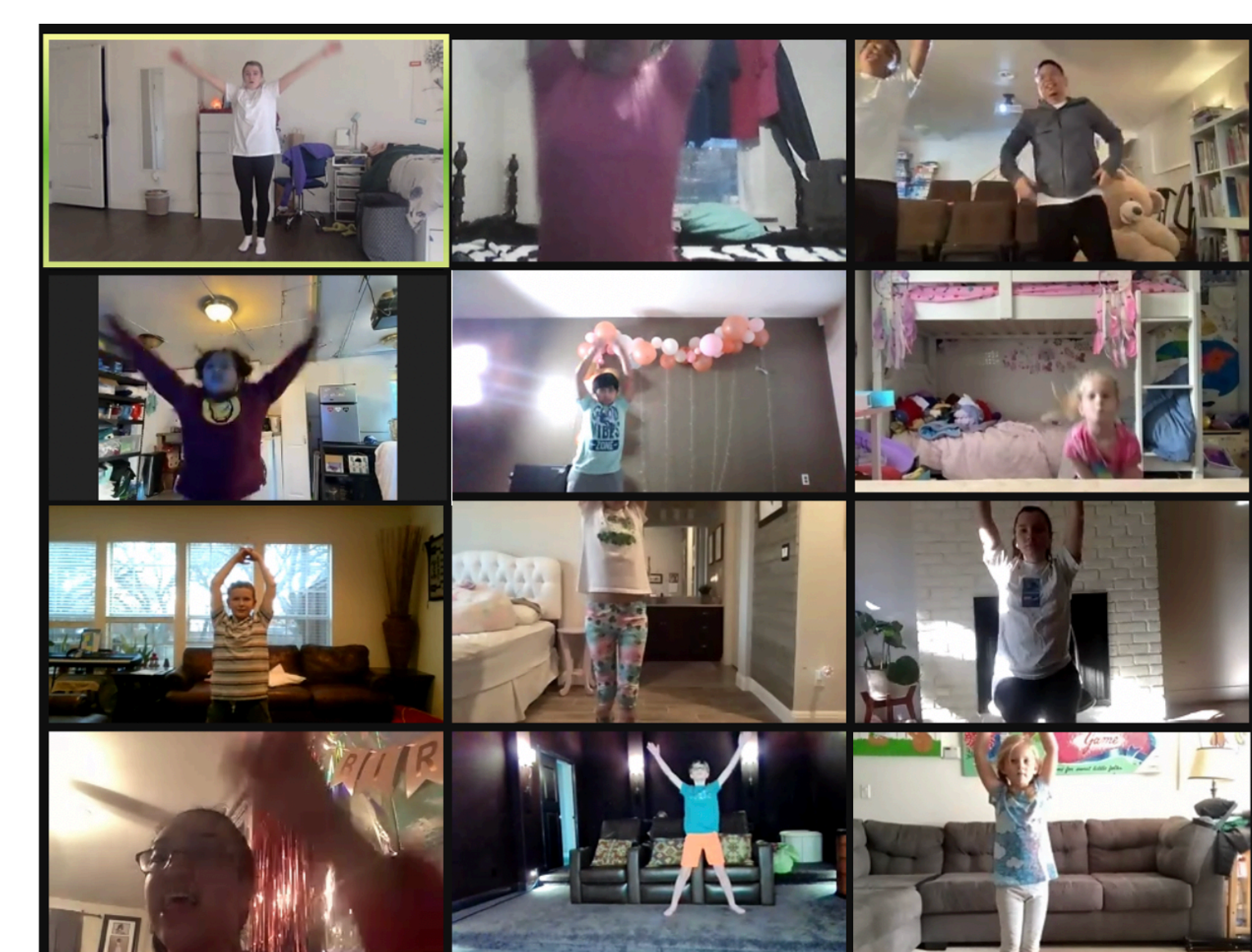
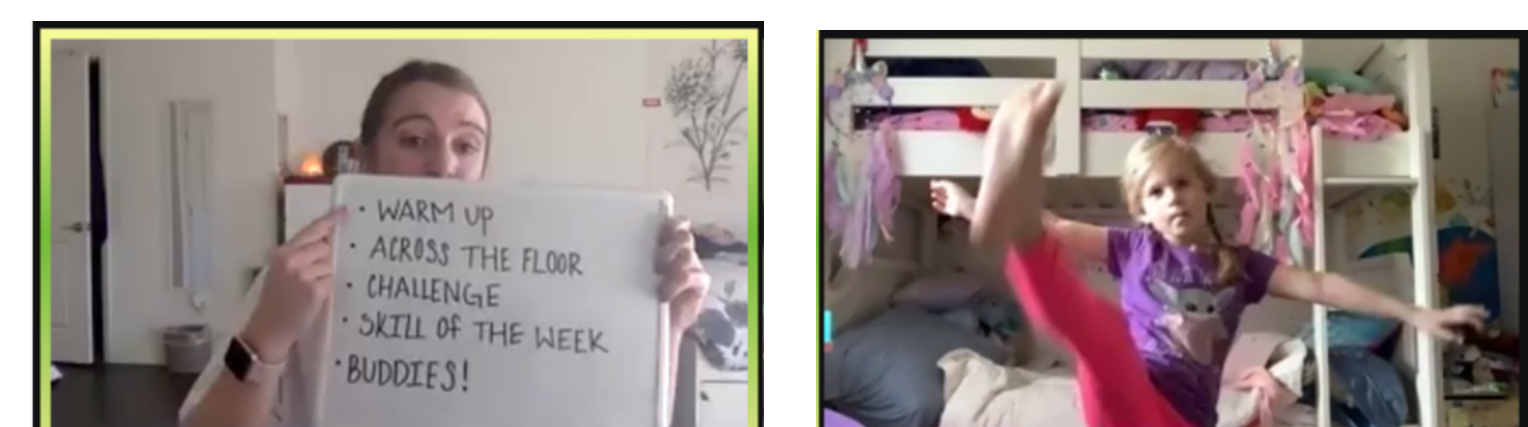
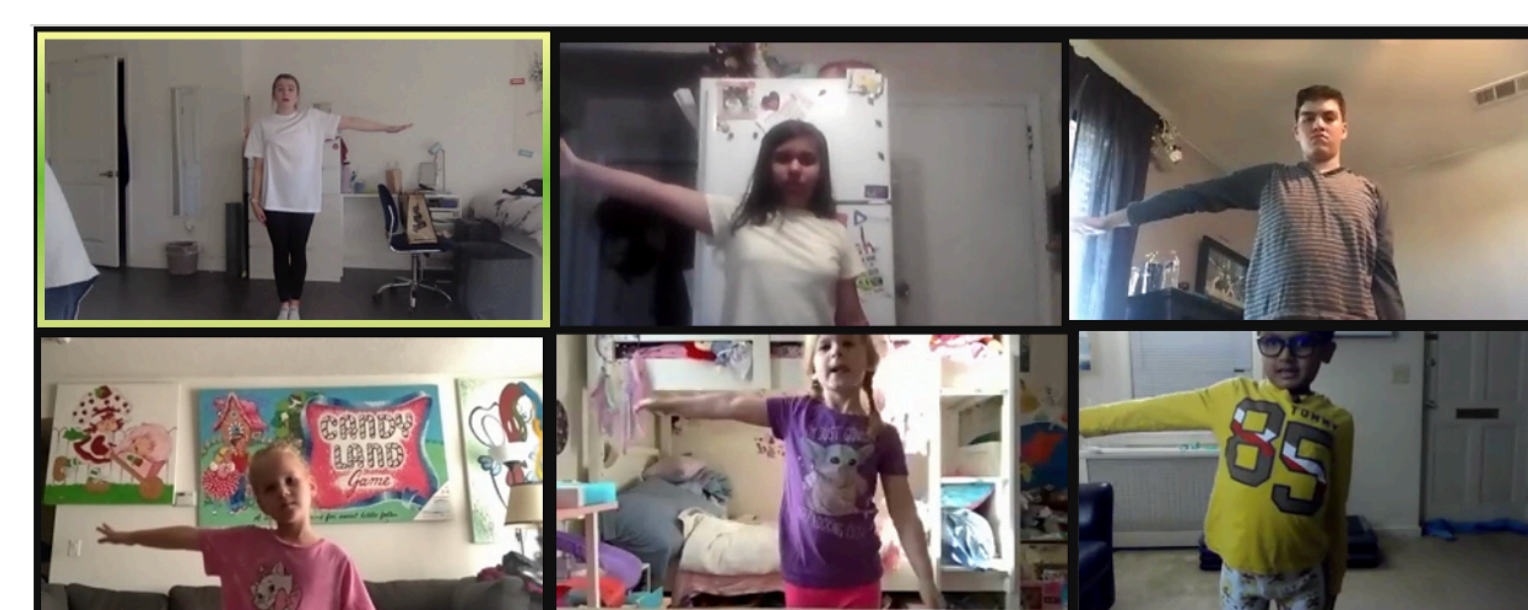
Participants by NDD Type



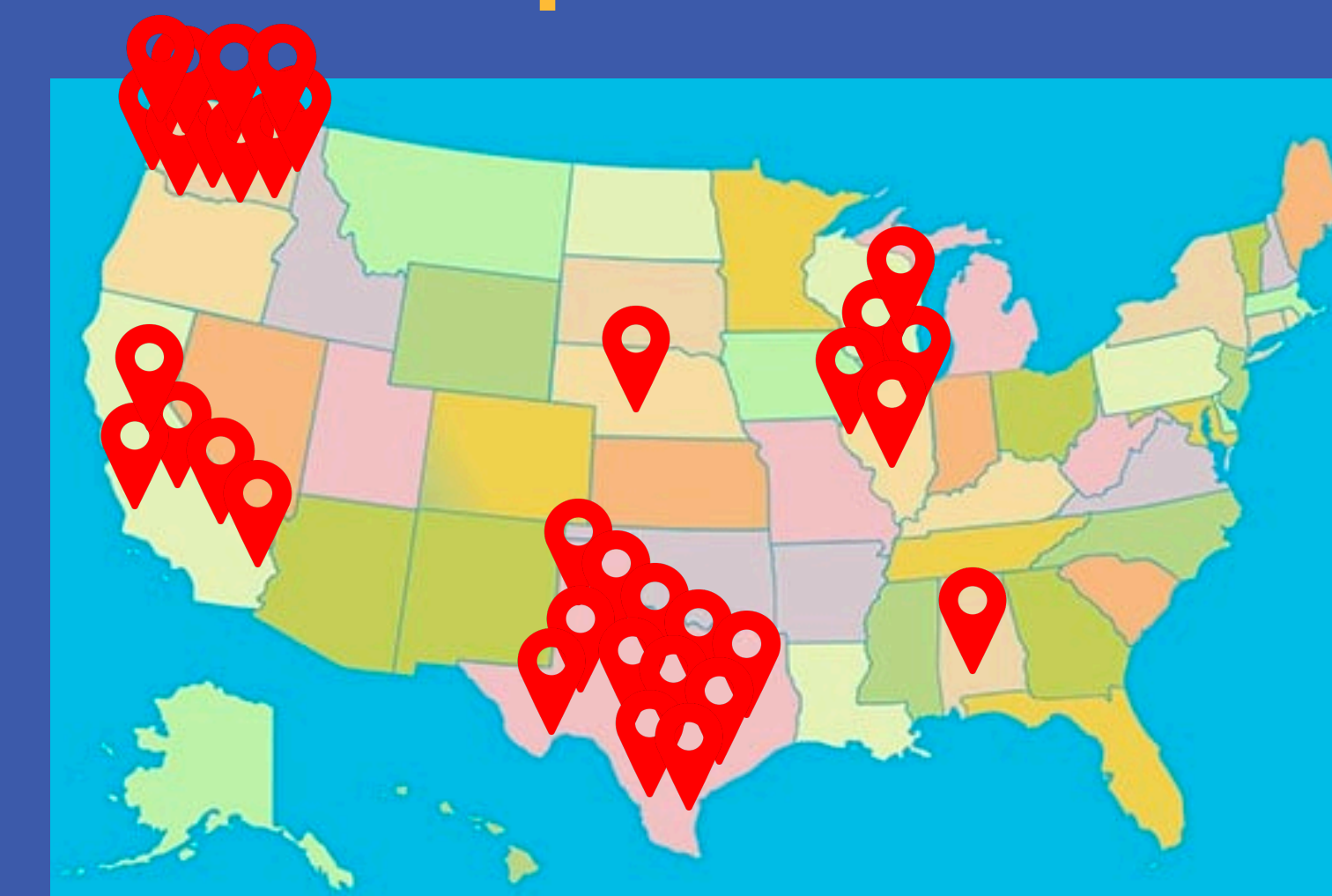
Age of Participants



Participants in Dance Class



Participant Locations



Survey Design

Review of existing literature revealed that few surveys exist to measure self-efficacy. Although validated surveys chosen for this study address core features of self-efficacy such as hope and self-concept, they do not directly address goal setting and attainment in a variety of contexts. Surveys intended to measure perception of self-efficacy from the perspective of both the child and their caregiver were designed for this study. Question content was informed by the opinions of current and former EMI volunteer teachers, caregivers of previous EMI dancers via survey, and recommendations found in relevant literature [3], which notably suggested that questions be binary with yes/no responses.

Results

241 individuals responded with interest in study enrollment, indicating a strong desire among caregivers to enroll their children with NDDs in dance classes. 18 children were ultimately randomized to the intervention (dance class) group and 16 children to the control (wait period) group, for a total of 34 participants. Participants range in age from 4 to 16 years (M 8.81, SD 3.21) with a plurality diagnosis of autism. The first cohort is currently underway with anticipated effects of dance classes as follows: improved objective and perceived motor skill, higher levels of self-efficacy, and improved quality of life for children and their caregivers.

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Conclusions

- Motor impairments are a prevalent co-occurring neurologic condition in individuals with NDDs and may restrict access and participation in OPAs.
- Improved perception of physical ability via participation in dance classes may beget participation in future physical activities
- Improved perception of physical ability may also contribute to improved perception of goal attainability, otherwise referred to as generalized self-efficacy. In other words, successfully recognizing improved physical competence through dance classes may help children perceive themselves as capable of making improvements in other domains, which might reasonably be applied to psychosocial and behavioral goals.

Self-efficacy is desired in all children as a component of resilience, with resilience itself being essential for healthy development in adverse settings, and therefore of particular benefit to a population defined by developmental adversity. This study both evaluates the effect of dance classes on self-efficacy and introduces a new tool for the evaluation of self-efficacy as perceived by participants and caregivers.

Future Directions

The modality of dance class (Zoom vs. In-person) may significantly affect its utility as a means of intervention. We suspect that future in-person cohorts may demonstrate greater benefits across all domains, which may have implications concerning the ideal mode of delivery for related therapies.

References

1. Green D, Wilson BN. The importance of parent and child opinion in detecting change in movement capabilities. Can J Occup Ther. 2008;75(4):208-219. doi:10.1177/000841740807500407
2. Scharoun SM, Reinders NJ, Bryden PJ, Fletcher PC. Dance/Movement Therapy as an Intervention for Children with Autism Spectrum Disorders. Am J Danc Ther. 2014;36(2):209-228. doi:10.1007/s10465-014-9179-0
3. Butler, R.J. & Gasson, S.L. (2005). "Self Esteem/Self Concept Scales for Children and Adolescents: A Review." Child and Adolescent Mental Health, 10(4): 190-201.