



The Helmsley Pediatric & Adolescent  
Rehabilitation Research Center



# Development of HOPE: A Family-Centered Home Video Assessment of Activity and Participation of Children with Disabilities



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# Research Team

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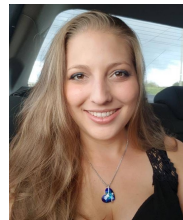
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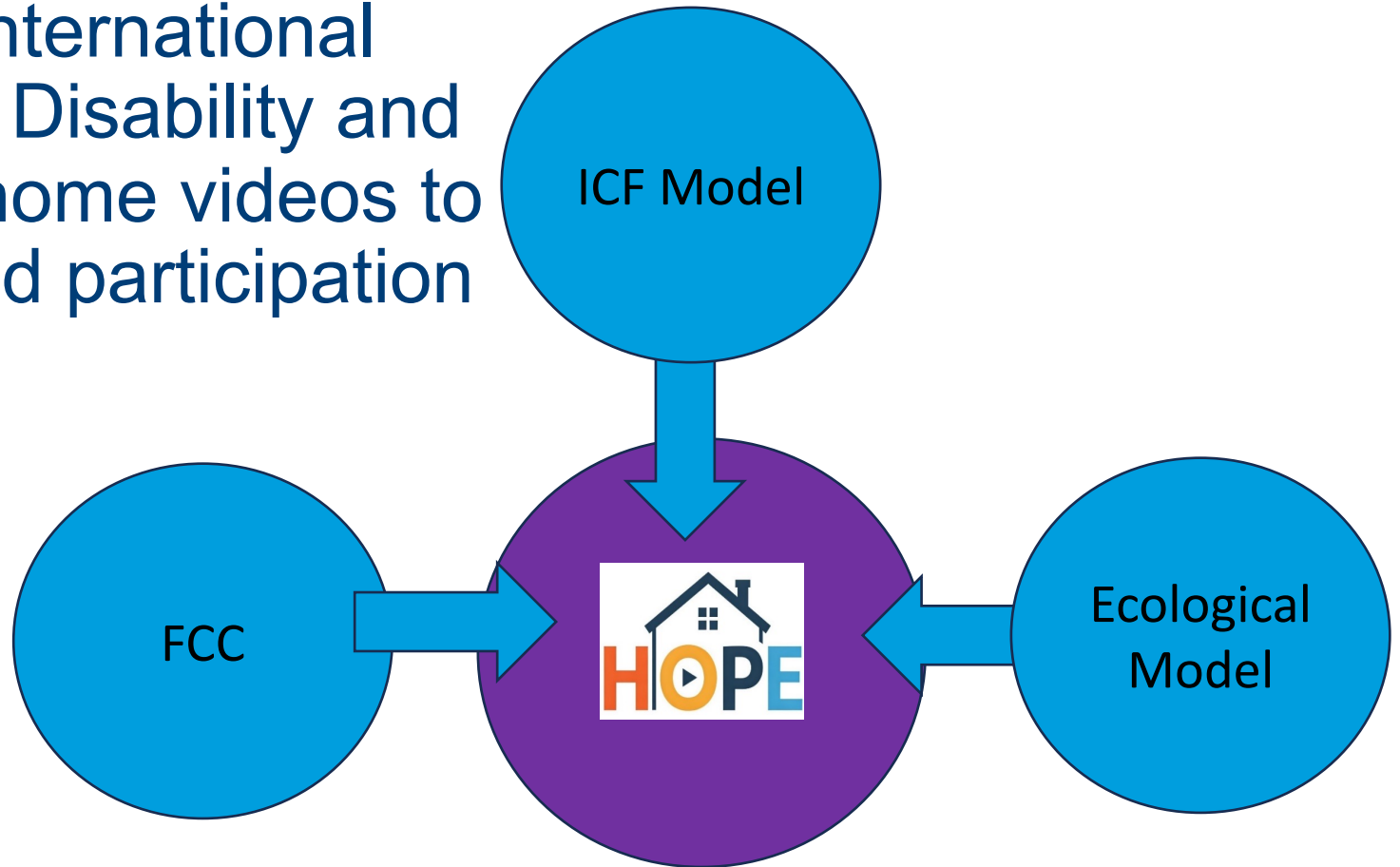
# Background: Home Videos for Assessment

- Natural environment -enhances ecological validity (Lindenschot et al, 2022)
- Insight into environment (Wilson et al, 2017)
- Parent involvement- Family Centered Care (FCC) (Riva et al., 2023)
- Document fluctuations in function (Lindenschot et al, 2022)
- Practical needs (Boonzaijer et al, 2017)



# Aim of Study

To develop and validate a standardized, integrative and holistic tool: Home Observation Pediatric Evaluation (HOPE) based on the International Classification of Function, Disability and Health (ICF) model using home videos to assess a child's activity and participation



# Development of HOPE

Based on Stages of Benson & Clark (1982)

## Conceptualization

- Literature Review
- Review of Assessments

## Expert opinion

- Focus group with parents and Questionnaire to parents
- Focus group with professionals

## Instrument Development

- Content and face validity- questionnaire to professionals
- Development of instructions to parents- written and video

Pilot study with 8 children: Feedback from parents and therapists



# Scoping Review



Mary Ann Liebert, Inc.  publishers

[Home](#) [Telemedicine and e-Health](#) > [Vol. 30, No. 6](#)

Review Article |  NO ACCESS | Published Online: 21 June 2024

## Home Videos for Remote Assessment in Children with Disabilities: A Scoping Review

Authors: [Shoshana Steinhart](#) , [Yafit Gilboa](#), [Rachel-Tzofia Sinvani](#), and [Naomi Gefen](#) | [AUTHORS INFO & AFFILIATIONS](#)

Publication: Telemedicine and e-Health • <https://doi.org/10.1089/tmj.2023.0437>

- Valid and reliable method for remote assessment
- Can aid in making a diagnosis, assess various body functions

### Future studies:

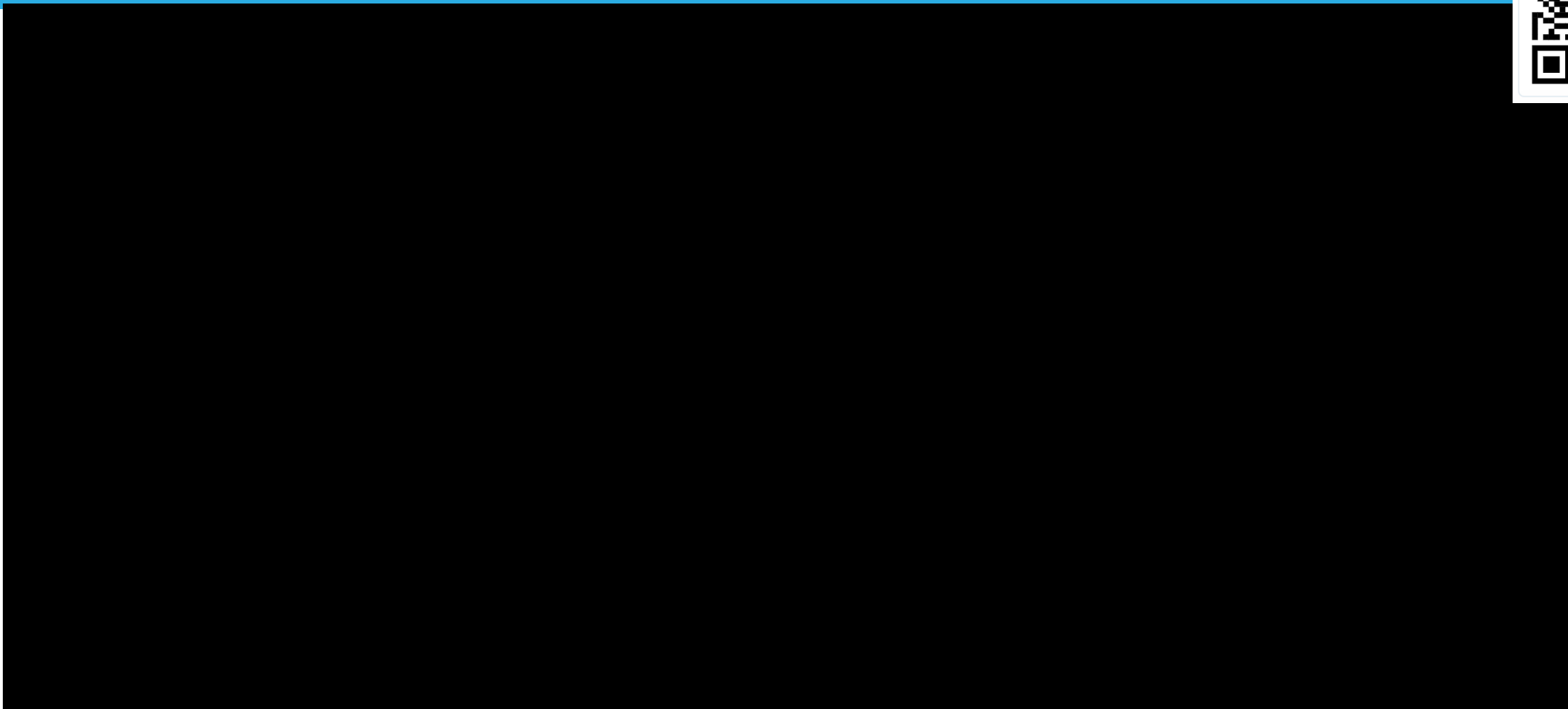
- Diverse factors, including activity, participation and environment
- Tools applicable to a variety of populations of children

# Protocol for HOPE

- Parents choose 3 activities:
  1. ADL (BADL, IADL)- from list of 5 activities
  2. Leisure or school- from list of 5 activities
  3. Open- ended activity
- Parents receive specific instructions on how to choose activity and how to film, including instructional videos



# HOPE Explanation video



# Protocol for HOPE

Items for scoring (Likert scale of 1-5) established based on ICF:

-  Participation
-  Activity Independence
-  Personal factors
-  Environmental factors
-  Body functions: Sensorimotor  
Executive functions



# Pilot Study (N=8)

**Participants:**  Children ages 6-18 with various disabilities

**Results:**

**Feasibility-**



Video Process



Ease of Scoring

Several changes in scoring made as a result of pilot study



# Validation Study



35 Children ages 5-18 with various disabilities

Recruited from Out-patient and clinics departments at ALYN



- Internal Consistency
- Inter-rater reliability
- Intra-rater reliability
- Test-retest reliability
- Concurrent Validity- Parents and OTs



# Measures: Concurrent Validity

 **PEMCY** (Coster, et al, 2012)- Participation  **Environment**

 **WeeFim** (Msall, et al, 1994)- **Activity independence**

 **DCDQ-07** (Wilson, et al, 2009) - **Motor coordination**

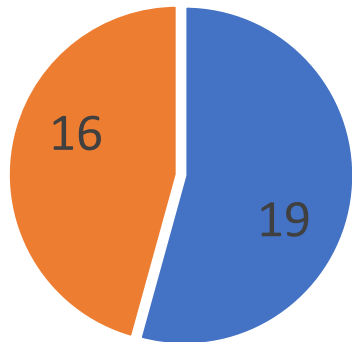
 **CHEX\ITEXI** (Thorell&Nyberg, 2008)- **Executive functions**

★★★☆☆ **SUS- satisfaction** (Brooke, 1995)



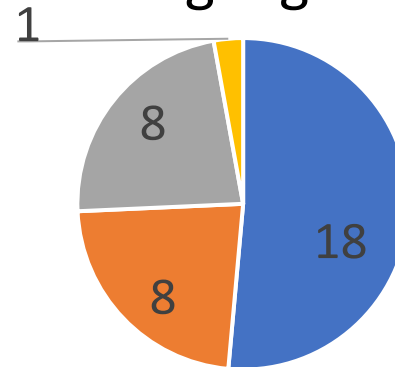
# Results- Demographics

## Gender



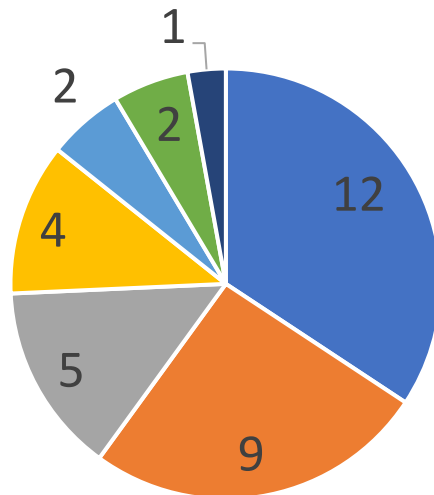
■ Boys ■ Girls

## Language



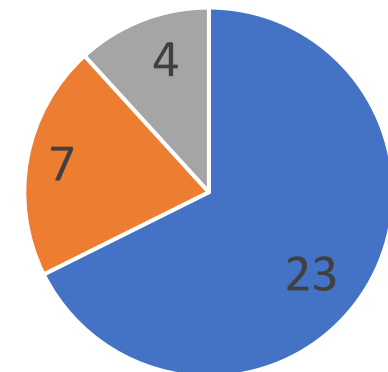
■ Hebrew ■ Arabic ■ English

## Diagnosis



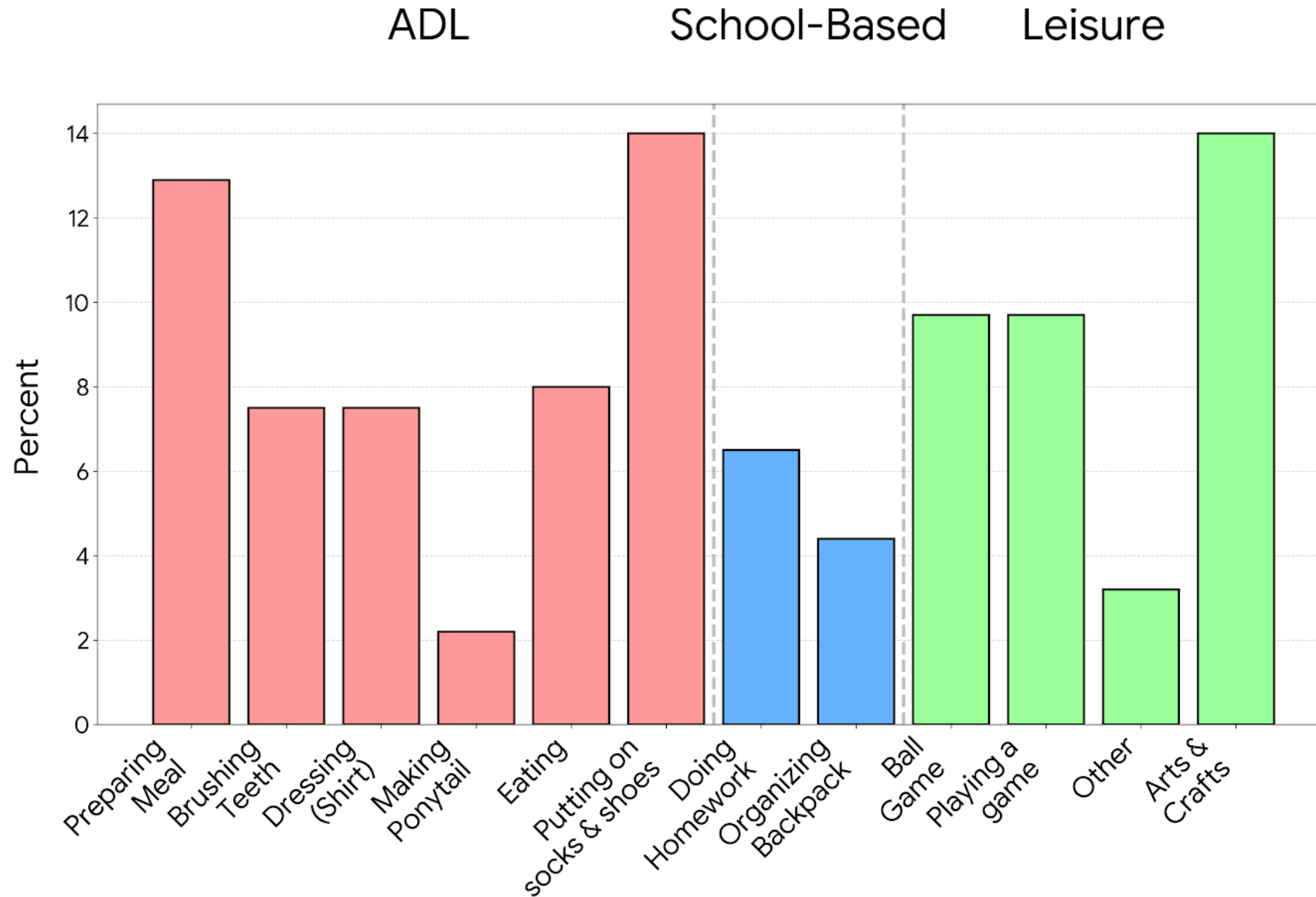
■ ABI  
■ CP  
■ NM  
■ Orthop  
■ SC  
■ DD  
■ CRPS

## Educational Setting



■ Regular Ed ■ Special Ed ■ Integrated

# Activities Filmed



# Feasibility

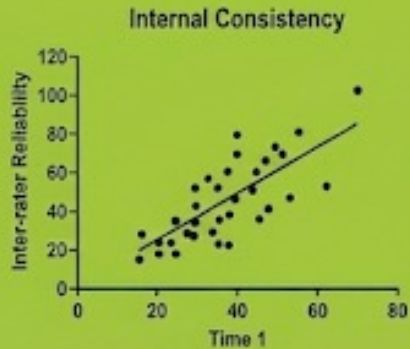


**High Parent Satisfaction with HOPE**

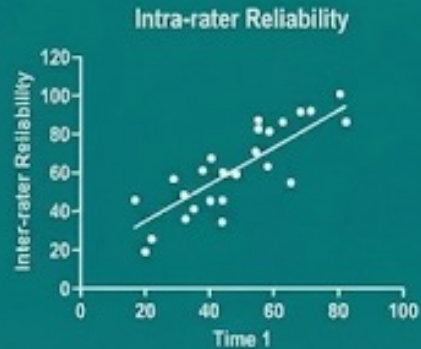
# Results- Reliability



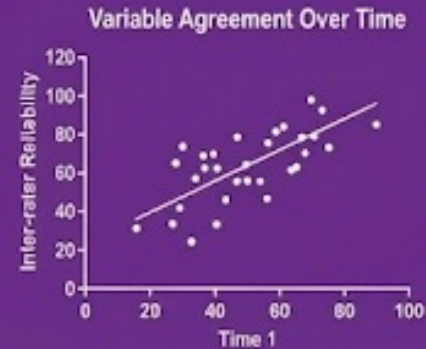
**Good Internal consistency:**  
Chronbach's alpha= .818



**Excellent intra-rater reliability in ICC:**  
(ICC: .990 (.961-.997))

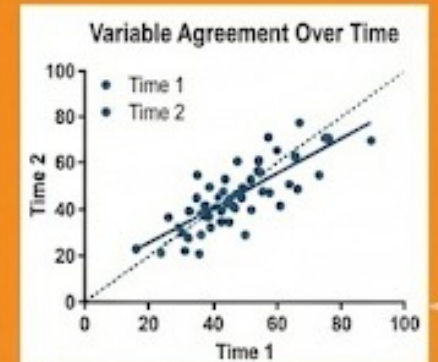


**Inter-rater reliability:**  
Good- excellent  
(ICC: .923 (.776-.979))



**TEST-RETEST RELIABILITY**

Test-retest: .800



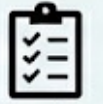
# Results- Concurrent Validity- OTs

## Correlation Analysis: HOPE Scores & Assessments

### Positive & Significant Correlations



HOPE Executive  
Function Score &  
CHEXI/TEXI



Checklist Child

Moderate Positive Significant Correlation:  
 $r = .364, p = .037$



General HOPE  
Scores & DCDQ07



Survey Child

Moderate Positive Significant Correlation  
 $r = .451, p = .018$

### No Significant Correlations Found



WeeFIM & HOPE  
Independence  
(NO CORRELATION)



Community



PEMPCY Participation  
& HOPE Participation  
(NO CORRELATION)



PEMPCY Environment  
& HOPE Environment  
(NO CORRELATION)



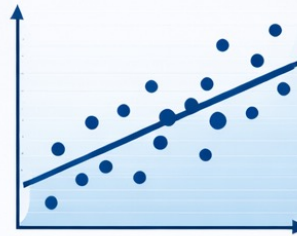
# Concurrent Validity- Parents

Parents' Scores on HOPE, WeeFIM, and PEMCY

## Independence Scores



Parents' Independence Scores



$r = .470$

$p = .009$

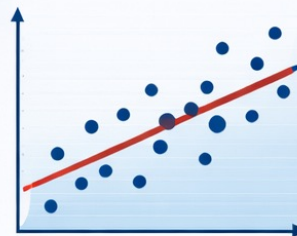
Significant Correlation

- ✓ Moderate Positive Correlation
- ✓  $p < 0.01^*$

## Participation Scores



Parents' Participation Scores



$r = .430$

$p = .018$

Significant Correlation

- ✓ Moderate Positive Correlation
- ✓  $p < 0.05^*$

# Conclusions

- Parents demonstrated high satisfaction using HOPE
- HOPE demonstrated very good reliability
- Concurrent Validity of HOPE OT scores not established when comparing to parent-report questionnaires
- Good validity when comparing to parents' scores



# Conclusions

- HOPE may be used as observational tool by OTs together with parents to supplement info obtained from parent report
- Further studies should consider assessing HOPE's concurrent validity compared to other observational OT assessments
- Further studies- explore use of AI for HOPE scoring





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THANK YOU!



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