Validation of Paratransit Skills Assessment for Using Paratransit Services

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To validate a reliable tool to assess the ability of an individual to independently use public paratransit services based on their performance in a controlled testing environment.

Paratransit is defined as shared transportation service in which vehicles operate on-demand over fixed or flexible routes.

Developed through Grant from Organization for Autism Research (OAR)

Validated through Grant from NJDOH Governor’s Council for the Medical Research and Treatment of Autism
Overview of the Paratransit Assessment Research

- Allows for alternative communication styles
- Encourages least restrictive service
- 37 Assessment Tasks in 4 sections
- Understandable results for those not familiar with paratransit
- Conduct validation then analyze and disseminate results
- Based on “Criterion Referenced Assessment” methodologies
- 2011-2012 Pilot Test Study - 5 adults with ASD
- 2014-2015 Reliability Study - 26 adults with ASD currently using paratransit
- 2014-2017 Validation Study – 72 adults with ASD in 4 categories who never used paratransit or public transit independently
Assessment Design:
Hierarchical Pyramid of Skills Required

Section 1: Basic Skills Required for All Paratransit Services
- Tasks required for all paratransit services and the minimum required tasks for using public Hand-to-Hand paratransit services.

Section 2: Intermediate Skills Required for Some Paratransit Services
- Tasks required some paratransit services and the minimum required tasks for using public Door-through-Door and Door-to-Door paratransit services independently.

Section 3: Advanced Skills Required for Some Paratransit Services
- Minimum required tasks for using public Curb-to-Curb and ADA Complementary Paratransit services independently.

Section 3: PaSA Questions 17 to 24
- Minimum required tasks for using public Curb-to-Curb and ADA Complementary Paratransit services independently.

Meets Minimum Requirements Move to Section 2
Meets Minimum Requirements Move to Section 3
Validation Study Overview

- Adults with an Autism Spectrum Diagnosis
  - Ages 18 and over
  - Never use paratransit services
  - Able to understand spoken English

About Study Population

- 72 participants participated in Assessment
  - 12 Determined currently unable to use paratransit
  - 60 participants met minimum criteria for in-vehicle test
    - 14 tested at Section 1 – Basic Skills
    - 5 tested at Section 2 – Intermediate Skills
    - 41 tested at Section 3 – Advanced Skills
  - Conducted in Person from December 2015 through December 2017

- Individualized In-Person, On-Location Testing

- Research conducted under Rutgers IRB
Participate in Assessment

In-Vehicle Test with Blind Observers

Wait for Vehicle

Board and Pay

Sit Appropriately

Enjoy the Trip!
Kappa Statistic for accuracy of blind observers
88% in almost perfect agreement

Kuder-Richardson Analysis show high reliability, not homogeneous
72 Assessment scores $\rho = 0.847$
60 in-vehicle scores $\rho = 0.826$

Accuracy Rate of 95.7%

Full study had 4 Tasks above 5% error rate: Respond to Greeting, Follow Instructions, Identify Self, and Provide Identification

46 Participants in Sections 2 & 3 No Tasks had error rates above 5%

Overall 9 Tasks had some errors

Pearson’s correlation coefficient was 0.977
High positive correlation and a strong linear relationship
## Differences Between Assessment and In-Vehicle

<table>
<thead>
<tr>
<th>Assessment Task</th>
<th>Assessment Average</th>
<th>In-Vehicle Average</th>
<th>Difference</th>
<th>Wilcoxon Signed-Rank</th>
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</thead>
</table>

* Inclusive of 14 Section 1, five Section 2, and 41 Section 3 Study Participants (60 total)
** Inclusive of five Section 2 and 41 Section 3 Study Participants (46 total)
*** Inclusive of 41 Section 3 Study Participants Only (41 total)
Cluster Analysis by Participant

In-Vehicle

Assessment

Section 1

Section 2

Section 3
Recommendations for Future Research

- Conduct reliability study in additional languages
- Expand study population for other populations with cognitive disabilities
- Gather aggregate data to address accommodations, supports and procedures
- Develop list of technological recommendations to assist in independent travel
Questions and Comments >>
Acknowledgements

103 Total Study Participants

Paratransit Skills Assessment Development Team: Dr. Patrick Szary, Dr. Liz Matheis, Kenneth Lee, Louis Hoffman and Christopher Manente, Ph.D.

Validation Team: Brian Tobin, Andrea Lubin, Elizabeth Binstein, Rebecca Jolibois, Disha Patel, Aaron Zisook, Alisa Matlin, Ayana Ainyette, Maria Fodali, Amos Han, and Kelly Spurrier

Revealed Study Advisory Team: Dr. Lazar Spasovic, Dr. Athanassios Bladikas, Dr. Steven I-Jy Chien, Dr. Janice Daniel, Dr. Patrick Szary, New Brunswick, Bransilav Dimitrijevic, Dr. Dejan Besenski, Dr. Peter Gerhardt, and Alisa Matlin

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Review Discrete Tasks: New Jersey’s Council on Special Transportation and the Association of Travel Instruction

Expert Users Reviewers: Toli Anastassiou, Executive Director of Quest Autism; Ed Hoff, ADA Services and Eligibility Manager of NJ Transit,; Leslie Long, Director of Housing and Adult Services at Autism Speaks; Judy Shanley, Director of Student Engagement and Mobility Management Easter Seals Project ACTION; and Robert Titus, Director of Public Policy at Autism NJ