Wednesday, 3:00 – 4:30, F4

The MSU Autism Research Lab

Karis Casagrande
Katherine Pickard

Objectives:

Identify effective methods for the practical application of concepts related to improving the delivery of services for persons with developmental disabilities at the level of the state.

Notes:
The MSU Autism Research Lab
Michigan State University
Karís Casagrande, M.A. & Katherine Pickard, M.A.

Presentation Overview

What is parent-mediated intervention (PMI)?

- **Systematic instruction** in strategies to help parents accomplish specific goals or outcomes for their child

  - Behavior Management
  - Parent-Child Interaction
  - Developmental Skills

- PMI is a primary intervention strategy

What are the outcomes of PMI in ASD?

- Parent Outcomes
  - Evidence Based Practice (NRC, NPOC-ASD, NSF)
  - Increased intervention fidelity
  - Increased self-efficacy
  - Decreased stress

- Child Outcomes
  - Decreased behavior problems
  - Increased social communication

How is PMI used in the community?

- Highly under-utilized in community settings

  - 25% of providers reported offering formal parent training
  - 8% of families of children ≤ 4 reported using formal parent training
  - ASD parents reported parent training as a unmet service need

Evidence Based Practice (NRC, NPOC-ASD, NSF)

Highly valued by providers and parents (Campbell & Halbert, 2002, Hume, Bellini, & Pratt, 2005; Mahoney & Filer, 2006; Stahmer, 2007; Pickard & Ingersoll, 2016; Thomas et al., 2007)

Highly under-utilized in community settings

8% of families of children ≤ 4 reported using formal parent training

ASD parents reported parent training as a unmet service need
Project ImPACT

Best practices in parent-mediated intervention

Evidence-based strategies
Effective adult learning strategies
Elements to support adoption and implementation
Compatible with stakeholder values
Simple to use
Technical supports
Flexible format
Focus on capacity building

How can we increase community use of PMI?

Improve implementation in existing systems
Develop models that fit with community settings
Develop alternative delivery models
Create new or modify systems of care

Issues of dissemination and implementation (Medicaid)

Improving access to care through telehealth (ImPACT Online)

Current Research

(ImPACT RCT)
Examining different levels of parent support
(Open Access)
Use of the intervention in every day settings

Focusing in on the fit of Project ImPACT in the Medicaid system

Adaptation of Project ImPACT for the Medicaid System

• Community partnerships can be useful to ensure the fit of existing evidence-based services as they are transported from research settings to community practice.

Issues of Access and Engagement in the Medicaid System

Only 25% of parents report that they are able to use parent-mediated intervention.
Parent-mediated intervention strategies are used in less than 25% of usual care sessions in the community.
High levels of attrition when parent-mediated interventions have been used in the Medicaid system.
Parent-mediated intervention research tends to have more White and resourced families.
Improving Health Services through Community Partnerships

- Health interventions will have the greatest impact when they are broadly used by community members.
- Definition: formal collaborative relationships between researchers and community members, in which members work together to reach a common goal (Brookman-Frazee et al., 2012; Brookman-Frazee et al., 2015)

Our Community Participants

PARENTS (N=16; 3 Focus Groups)
- 39.30% (6) White/European American
- 18.80% (3) Black/African American
- 18.80% (3) Biracial/Other
- 12.50% (2) Hispanic/Latino

PROVIDERS (N=16; 3 Focus Groups)
- 43.75% (7) White/European American
- 25.00% (4) Black/African American
- 37.50% (6) Early Childhood Therapist
- 12.50% (2) Behavior Technician

Striking the Balance Between Fidelity and Fit

Creating high quality, “evidence-based” services

Creating services that are accessible for public health settings.

(Damschroder et al., 2009; Eccles & Mittman, 2006; Nilsen, 2015)

Testing out the Adaptations

- Trialed adapted program in Medicaid system
- Collected data on feasibility and acceptability
- Use this to collect continued information to improve program before piloting on a larger scale

Project ImPACT Group Logistics

12-session program:
- Group meets every other week for 2 hours (didactics)
- 1-hour individual coaching in the off weeks, all provided in-home

Group Supports
- Childcare and transportation provided
- Central location for groups
- All other adaptations implemented

(Ingersoll & Dvortcsak, 2010)
Participating Families

<table>
<thead>
<tr>
<th>Family</th>
<th>Family Size</th>
<th>Family Structure</th>
<th>Education</th>
<th>Race/Ethnicity</th>
<th>Attendance (% sessions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1</td>
<td>3</td>
<td>Single mother + grandparent</td>
<td>High school</td>
<td>Black/African American</td>
<td>83.33%</td>
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<tr>
<td>#2</td>
<td>5</td>
<td>Married</td>
<td>Associates Degree</td>
<td>White</td>
<td>91.67%</td>
</tr>
<tr>
<td>#3</td>
<td>6</td>
<td>Married, foster parents</td>
<td>Associates Degree</td>
<td>Black/African American</td>
<td>91.67%</td>
</tr>
<tr>
<td>#4</td>
<td>4</td>
<td>Single, living with partner</td>
<td>High school</td>
<td>White</td>
<td>75%</td>
</tr>
</tbody>
</table>

Preliminary results

Did the parents learn the strategies?
- Fidelity scores: 1.5 → 3.75 (on a scale of 1-5)
- Family Empowerment: Small changes on the Family Empowerment Scale.

Open Ended Feedback:
- "This program really gives you the tools to help your child, it should be offered to all parents!"
- "It was great to learn really small changes that make a big difference with your child."

Did the children appear to benefit from their parents’ use of the strategies?

Social Communication Checklist:
- Across families, biggest changes reported in social engagement (i.e. eye contact, sharing of emotions, length of play with parent)
- Changes in 3 families in complexity of play.

Parent Ratings of Program

- Compatibility (The program fits my lifestyle)
- Complexity (Easy to learn strategies)
- Relative Advantage (Program makes services better)

Implications
- Community partnerships can be used to enhance collaboration across research and community settings.
- Doing so increases the compatibility and accessibility of best practice health services in community settings.

Develop Alternative Delivery Models

- Using telehealth to increase access to parent-mediated intervention for young children with autism
- Can surmount many family-level barriers to access
- Potential to increase access in underserved communities including low resourced countries
What is telehealth?

- Delivery of health information over the internet
- Can surmount many family-level barriers to access
- Potential to increase access in underserved communities including low resourced countries

Two telehealth models

- Online Tutorial
  - 12 lessons - self-paced
  - Monthly check-in from research staff
- Remote Coaching
  - 12 lessons - twice weekly
  - Parent-only didactics and parent-child coaching

Program Engagement

<table>
<thead>
<tr>
<th></th>
<th>Overall M (SD)</th>
<th>Self-Directed M (SD)</th>
<th>Therapist-Assisted M (SD)</th>
<th>Test Statistic</th>
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</thead>
<tbody>
<tr>
<td>Number of logins</td>
<td>40.85(22.90)</td>
<td>29.74(15.73)</td>
<td>50.95(15.59)</td>
<td>34.68**</td>
</tr>
<tr>
<td>Total hours on site</td>
<td>16.08(6.64)</td>
<td>11.78(5.17)</td>
<td>20.67(8.51)</td>
<td>7.81*</td>
</tr>
<tr>
<td>% Participants Completing Program</td>
<td>83.40%</td>
<td>99.00%</td>
<td>100.00%</td>
<td>3.246*</td>
</tr>
</tbody>
</table>

Program Acceptability (STP)

Parent and Child Outcomes

- Increased intervention knowledge (Quiz)
- Increased intervention fidelity (PCI)*
- Increased parenting stress (PSI)
- Increased self-efficacy (PSOC)
- Increased quality perceptions (FAQ)*
- Increased communication skills (VABS)
- Increased expressive vocabulary (MCID)
- Increased language use (PCI)*
- Increased socialization skills (VABS)**

*Greater improvements in therapist assisted group
**Improvement only in the therapist assisted group

Semi-Structured Interviews (n=10)

- And I mean it is that foundation you know. Like okay let's get some intervention, and from a family stand-point I felt a little helpless. Like what do I do? And you have all these things they have intervention outside of the home, going to this therapist and that, but when they come home a parent can't be like I don't have the knowledge. So, having something like this, I feel like I have power to really help my kid now. And that transition, you know that cycle doesn't break when he steps in the house. You can continue to build upon what he's learning.
Conclusions

- High level of engagement and acceptability
- Improvement in parent and child outcomes
- Therapist assistance improves some outcomes
- Comparative efficacy trial
- Stepped care model

Different Levels of Support

- Exploring a stepped model of care
  - Different levels of support may best support different types of families
  - A stepped model of care can help to increase the reach of interventions

Different levels of support

- Families are randomly assigned to participate in one of three ways:
  1. Access to an online parent training program
     - Two 30-minute remote coaching sessions per week
  2. Access to an online parent training program
     - Self-directed, with monthly check-in phone calls
  3. Access to an online resource list
     - Self-directed, with monthly check-in phone calls
     - These families will receive access to the online parent training program after the study period ends

Current Project Status

Recruitment

- Child Eligibility
  - Have a diagnosis of ASD
  - Be between 18 and 96 months of age
  - Meet other inclusion criteria

- Benefits to Families
  - Receive $25 during each assessment ($75 total)
  - Receive initial and follow-up report of child’s skills
  - Be provided with all technology if needed at no cost

- Contact Information
  - MSU Autism Lab
  - Project Coordinator: Nikki Bonter
  - Email: bonterni@msu.edu
  - Phone: 517-432-8031

Study Timeline: 9 months

- Pre-Assessments
  - 1-2 visits to the clinic for assessment
  - Phone interview
  - Online questionnaires

- Pre-Home Visit
  - Parent-child videos
  - Brief questionnaires

- Complete the Program
  - 1-2 months parent completed their assigned program
  - Monthly 30-minute phone check-in with research staff

- Post Home Visit
  - Parent-child videos
  - Brief questionnaires

- Follow up Visit
  - 1-2 visits to the clinic for assessments
  - Parent-child videos

Use of low-intensity interventions

- Understand how parents utilize self-directed interventions in the community
  - Can surmount many family-level barriers to access
  - “Low-intensity interventions that are less efficacious but that can be delivered to large numbers of people may have a more pervasive impact.” Glasgow, Vogt, & Boles (1999)
**Open Access Trial**

**Recruitment**
- Flyer at diagnostic feedback session
- Link on Statewide ASD website
- Word of mouth / Web Search

**Dissemination Potential**
- Demographics
- Program Engagement
- Reach

**Effectiveness**
- Parent Learning

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**User Demographics**

<table>
<thead>
<tr>
<th></th>
<th>Open Access (n=113)</th>
<th>Lab Trial (n=51)</th>
<th>p-value</th>
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</thead>
<tbody>
<tr>
<td><strong>Parent Characteristics</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender (% female)</td>
<td>88%</td>
<td>85%</td>
<td>.84</td>
</tr>
<tr>
<td>Education Level (% college degree)</td>
<td>54%</td>
<td>58%</td>
<td>.61</td>
</tr>
<tr>
<td>Marital Status (% married)</td>
<td>78%</td>
<td>81%</td>
<td>.83</td>
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<tr>
<td>Employment Status (% employed)</td>
<td>69%</td>
<td>58%</td>
<td>.47</td>
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<tr>
<td>Mean Computer Fluency (CEWFS)</td>
<td>37.1</td>
<td>36.7</td>
<td>.54</td>
</tr>
<tr>
<td><strong>Child Characteristics</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender (% male)</td>
<td>77%</td>
<td>83%</td>
<td>.39</td>
</tr>
<tr>
<td>Race/Ethnicity (% minority)</td>
<td>24%</td>
<td>39%</td>
<td>.08</td>
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<tr>
<td>Mean Chronological Age (months)</td>
<td>43.31</td>
<td>39.84</td>
<td>&lt;.001*</td>
</tr>
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</table>

**Potential Reach of Impact Online**

- % Access: 18.71
- % Did not access: 81.3

Follow-up when information about ImPACT Online given at the time of their child's diagnosis

**Program Engagement**

- Open Access (n=95)
- Lab Trial SD Group (n=17)

**Percent of Learning Activities Completed by Lesson**

<table>
<thead>
<tr>
<th>Lesson</th>
<th>Open Access</th>
<th>Lab Trial SD Group</th>
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<tbody>
<tr>
<td>1</td>
<td>100%</td>
<td>80%</td>
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<tr>
<td>2</td>
<td>90%</td>
<td>60%</td>
</tr>
<tr>
<td>3</td>
<td>80%</td>
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<tr>
<td>4</td>
<td>70%</td>
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<td>5</td>
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<td>6</td>
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<td>7</td>
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</tr>
<tr>
<td>8</td>
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<td>9</td>
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</tr>
<tr>
<td>10</td>
<td>10%</td>
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</tr>
<tr>
<td>11</td>
<td>0%</td>
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<tr>
<td>12</td>
<td>0%</td>
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**Conclusions**

- Demographics similar to lab-based trial
- Engagement significantly lower
- Limited reach
- Similar effect on parent learning
- Methods needed to enhance engagement in real world settings
Parent-mediated intervention is a key component of early intervention. There are a number of barriers to delivery of parent-mediated interventions. Community partnerships can be used to enhance collaboration across research and community settings. Barriers can be addressed through flexible implementation and delivery models.

References

Participant Demographics

<table>
<thead>
<tr>
<th>Overall</th>
<th>Group</th>
<th>Self-Directed</th>
<th>Therapist-Assisted</th>
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<tbody>
<tr>
<td></td>
<td>(%)</td>
<td>(n=13)</td>
<td>(n=14)</td>
</tr>
<tr>
<td>Parent Characteristics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender (% female)</td>
<td>96%</td>
<td>92%</td>
<td>100%</td>
</tr>
<tr>
<td>Education Level (% collage degree)</td>
<td>56%</td>
<td>46%</td>
<td>64%</td>
</tr>
<tr>
<td>Mental Status (% married)</td>
<td>85%</td>
<td>97%</td>
<td>71%</td>
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<tr>
<td>Employment Status (% employed)</td>
<td>59%</td>
<td>57%</td>
<td>64%</td>
</tr>
<tr>
<td>Residence in Underserved Area</td>
<td>79%</td>
<td>79%</td>
<td>56%</td>
</tr>
<tr>
<td>Child Characteristics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender (% male)</td>
<td>79%</td>
<td>61%</td>
<td>79%</td>
</tr>
<tr>
<td>Race/Ethnicity (% Minority)</td>
<td>22%</td>
<td>7%</td>
<td>36%</td>
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<tr>
<td>Mean Chronological Age in Mos. (SD)</td>
<td>43.26 (12.58)</td>
<td>46.08 (13.18)</td>
<td>41.57 (12.24)</td>
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<tr>
<td>Mean Nonverbal Mental Age in Mos. (SD)</td>
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<tr>
<td>Mean Verbal Mental Age in Mos. (SD)</td>
<td>24.83 (11.57)</td>
<td>25.42 (13.92)</td>
<td>24.29 (9.38)</td>
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<tr>
<td>Mean Non-Study Intervention Hrs / Wk (SD)</td>
<td>12.98 (10.15)</td>
<td>13.62 (10.96)</td>
<td>12.38 (9.70)</td>
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Parent Learning

Intervention Knowledge

<table>
<thead>
<tr>
<th>Time</th>
<th>F(1, 25)=65.75, p&lt;.001</th>
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<tbody>
<tr>
<td>Self-Directed</td>
<td>Therapist-Assisted</td>
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Intervention Fidelity

<table>
<thead>
<tr>
<th>Time</th>
<th>F(1, 25)=10.76, p=.003</th>
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<tr>
<td>Self-Directed</td>
<td>Therapist-Assisted</td>
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Parent Learning

Parenting Stress (FRQ)

<table>
<thead>
<tr>
<th>Time</th>
<th>F(1, 25)=4.49, p=.05</th>
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<tr>
<td>Self-Directed</td>
<td>Therapist-Assisted</td>
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Parent Self-Efficacy (PSOC)

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<thead>
<tr>
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<tbody>
<tr>
<td>Self-Directed</td>
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Positive Perceptions (FRQ)

<table>
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<tr>
<th>Time</th>
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<tr>
<td>Self-Directed</td>
<td>Therapist-Assisted</td>
</tr>
</tbody>
</table>

Child Outcomes

Communication Standard Score (VABS-II)

<table>
<thead>
<tr>
<th>Time</th>
<th>F(1, 25)=18.53, p&lt;.01</th>
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<tbody>
<tr>
<td>Self-Directed</td>
<td>Therapist-Assisted</td>
</tr>
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</table>

Expressive Vocabulary (MCDI)

<table>
<thead>
<tr>
<th>Time</th>
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<tbody>
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<td>Self-Directed</td>
<td>Therapist-Assisted</td>
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</table>

Language Target Rate Per Minute (PCI)

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<tr>
<th>Time</th>
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<tbody>
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<td>Self-Directed</td>
<td>Therapist-Assisted</td>
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Child Social Skills

Socialization Standard Score (VABS-II)

<table>
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<tr>
<th>Time</th>
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<tbody>
<tr>
<td>Self-Directed</td>
<td>Therapist-Assisted</td>
</tr>
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</table>