Family Systems Early Intervention: Research Methodologies and Findings

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Purpose of the Seminar

• Describe the types of research that have been conducted to evaluate basic tenets of the family systems intervention model

• Describe the challenges and opportunities in conducting research on family systems intervention practices

• Describe findings from several studies and meta-analyses of the relationships between family systems intervention practices and parent, family, and child outcomes
Types of Studies That Have Been Conducted to Date

• Studies of the relationship between measures at one of Bronfenbrenner’s systems levels and child, parent, and family outcomes
• Meta-analyses of research on the relationships between different family systems intervention model practices and child, parent, and family outcomes
• Structural equation model studies of the pathways of influence between different family systems intervention model practices and child, parent, and family outcomes
• Meta-analytic structural equation model studies of the pathways between and relationships among the family systems intervention model practices and different child, parent, and family outcomes
Examples of System Level Research Studies

MACROSYSTEM

EXOSYSTEM

MESOSYSTEM

MICROSYSTEM

Child Development
Examples of Systems Theory Research Studies

**Microsystem Study**
Influences of parenting interactional styles on child behaviour and development

**Mesosystem Study**
Influences of different types of social support from informal and formal network social members on parent stress and well-being

**Exosystem Study**
Influences of different types of early childhood help-giving practices on parents’ beliefs about their parenting confidence and competence

** Macrosystem Study**
Influences of public policy and federal and state government laws on early childhood intervention practices
A Few Challenges Conducting Research on the Family Systems Intervention Model

• The more complex the systems theory and the more complex the hypothesized relationships among the variables in the theory, the less applicable are more traditional research methodologies.

• The attempt to try to capture “real life” variations in the supports and experiences of families and the influences of that variation on child, parent, and family outcomes *a la* Bronfenbrenner’s *Experiments by Nature*.

• The need to include the most relevant variables in a study and to specify the natures of the relationships among the variables.
Research Syntheses on the Family Systems Intervention Practices

CAPACITY-BUILDING HELP GIVING PRACTICES

FAMILY CONCERNS AND PRIORITIES

FAMILY MEMBER STRENGTHS

SUPPORTS AND RESOURCES
## Family Systems Model Studies

<table>
<thead>
<tr>
<th>Model Component</th>
<th>Number of Studies</th>
<th>Number of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concerns and Priorities</td>
<td>32</td>
<td>7,781</td>
</tr>
<tr>
<td>Family Strengths</td>
<td>32</td>
<td>2,924</td>
</tr>
<tr>
<td>Social Supports and Resources</td>
<td>79</td>
<td>10,932</td>
</tr>
<tr>
<td>Help Giving Practices</td>
<td>52</td>
<td>12,211</td>
</tr>
</tbody>
</table>
## Independent Measures Used in the Synthesis Studies

<table>
<thead>
<tr>
<th>Model Component</th>
<th>Independent Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concerns and Priorities</td>
<td>Family Resource Scale, Family Needs Scale</td>
</tr>
<tr>
<td>Family Strengths</td>
<td>Family Functioning Style Scale, Family Hardiness Index</td>
</tr>
<tr>
<td>Social Supports</td>
<td>Family Support Scale, Support Functions Scale</td>
</tr>
<tr>
<td>Help Giving Practices</td>
<td>Helpgiving Practices Scale, Measure of Process of Care, Family-Centred Practices Scale, Enabling Practices Scale (+9 other scales)</td>
</tr>
</tbody>
</table>
### Dependent Measures Included in the Synthesis Studies

<table>
<thead>
<tr>
<th>Outcome Domains</th>
<th>Outcome Measures (Selected Examples)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self Efficacy Beliefs</td>
<td>Family Empowerment Scale, Personal Assessment of Control Scale</td>
</tr>
<tr>
<td>Parent Well-Being</td>
<td>Psychological Well-Being Index, Parenting Stress Index, CES-D</td>
</tr>
<tr>
<td>Family Well-Being</td>
<td>Family Environment Scale, FACES, Self Report Functioning Scale</td>
</tr>
<tr>
<td>Parent/Family Coping</td>
<td>Coping Strategies Inventory, F-COPES, Ways of Coping Scale</td>
</tr>
<tr>
<td>Life Events</td>
<td>Parent Daily Hassles Scale, Family Inventory of Life Events</td>
</tr>
<tr>
<td>Parenting Behavior</td>
<td>Parenting Competence Scale, Everyday Parenting Scale</td>
</tr>
<tr>
<td>Parent-Child Interactions</td>
<td>Parent-Child Relationship Scale, Parent Styles of Interaction Scale</td>
</tr>
<tr>
<td>Child Behavior</td>
<td>Conners Parent Rating Scale, Child Behaviour Checklist</td>
</tr>
<tr>
<td>Child Development</td>
<td>Bayley Scales of Infant Development, Vineland, Battelle, Adaptive Behaviour Inventory for Children</td>
</tr>
</tbody>
</table>
Method of Analysis

• The weighted average correlations among the independent and dependent variables were used as the effect sizes for the relationships between the family systems model practices and the study outcomes.

• The 95% confidence intervals for the effect sizes were used to determine (a) the precision of the weighted average correlations and (b) if the correlations differed significantly from zero.
Selected Findings

![Bar chart showing average weighted effect sizes for different components of the family systems model.](chart)

- **Concerns and Priorities**
  - Parent Well-Being: 58
  - Family Well-Being: 44
  - Parent Behavior: 12
  - PC Interaction: 5
  - Child Behavior: 32

- **Family Strengths**
  - Parent Well-Being: 77
  - Family Well-Being: 41
  - Parent Behavior: 0
  - PC Interaction: 42
  - Child Behavior: 27

- **Social Supports**
  - Parent Well-Being: 55
  - Family Well-Being: 65
  - Parent Behavior: 16
  - PC Interaction: 95
  - Child Behavior: 78

- **Helpgiving Practices**
  - Parent Well-Being: 23
  - Family Well-Being: 0
  - Parent Behavior: 16
  - PC Interaction: 8
  - Child Behavior: 22
Meta-Analysis of Family-Centred Help Giving Practices Research

- Assess the extent to and manner in which the use of family-centred help giving practices are directly and indirectly related to (a) parent involvement in their children’s learning and early education, (b) parenting confidence and competence, (c) parent and family well-being, and (d) child behaviour and development mediated by parents’ self-efficacy beliefs

- Self-efficacy beliefs were the focus of evaluating the indirect effects of help giving practices based on findings from my own and other studies of the importance of these types of beliefs in terms of influencing parents’ behaviour

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Studies Included in the Meta-Analysis

- 52 studies conducted by 23 researchers or research teams in 7 different countries
- 12,211 study participants whose children were involved in early intervention programs, preschool special education programs, elementary schools, family support programs, mental health programs, neonatal intensive care units, specialty clinics, rehabilitation centres, or physician practices
- The parents’ children had an average age of 71 months at the time the studies were conducted
- Sixty-one percent of the children had a developmental disability or identified condition (e.g., Down syndrome, cerebral palsy). 12% had a developmental delay, 6% were at risk for poor outcomes, 8% had mental health related disabilities and 13% were typically developing.
Direct Effects of Help Giving Practices on Parent, Family, and Child Behavior and Functioning
Direct Effects of Self-Efficacy Beliefs on Parent, Family, and Child Behaviour and Functioning
Direct and Indirect Effect of Help Giving Practices on Parenting Behaviour

(NOTE. Straight lines are direct effects, curved line is indirect effect)
Evaluating the Indirect Influences of Help Giving Practices on Parenting Behaviour

Carl J. Dunst  Carol M. Trivette

Participants: 100 parents of young children with and without disabilities participating in community-based family resource programs

Measures: Relational and participatory help giving, practitioner responsiveness to family concerns, parents’ judgments of the helpfulness of practitioner advice and guidance, parent self-efficacy beliefs, and parenting competence and confidence

Method of Analysis: Structural equation modelling for testing the hypothesised relationships among the variables in the model
Model for Evaluating the Indirect Effects of Help Giving Practices on Parenting Competence and Confidence
Standardized Parameter Estimates for the Relationships Among Measures in the Model

- **Help Giving Practices**
  - Relational
  - Participatory
  - Efficacy Attributions: .74**
  - Outcome Expectations: .21*

- **Self-Efficacy Beliefs**
  - Parent/Family Concerns: .57**
  - Parenting Capabilities: .29**
  - Competence
  - Confidence

- **Parent/Family Concerns**
  - Responsiveness
  - Helpfulness
  - Parenting Capabilities: .39**

*p < .05  **p < .001.
Standardized Parameter Estimates for the Relationships Among Measures in the Model

Relational

Help Giving Practices

.57**

Parent/Family Concerns

.74**

Self-Efficacy Beliefs

.29**

.39**

Parenting Capabilities

Competence

Confidence

Responsiveness

Helpfulness

Efficacy Attributions

Outcome Expectations

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- **Efficacy Attributions**
- **Outcome Expectations**

Parent/Family Concerns

- **Responsiveness**
- **Helpfulness**

Parenting Capabilities

- **Competence**
- **Confidence**

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Standardized Parameter Estimates for the Relationships Among Measures in the Model

Relational Participatory

Help Giving Practices

Efficacy Attributions Outcome Expectations

Self-Efficacy Beliefs

Parent/Family Concerns

Responsiveness Helpfulness

Parenting Capabilities

Competence Confidence

.74**

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Standardized Parameter Estimates for the Relationships Among Measures in the Model

Relational

Help Giving Practices

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- .74**

Parent/Family Concerns

- .29**

Self-Efficacy Beliefs

- .39**

Parenting Capabilities

- .21*

Efficacy Attributions

Outcome Expectations

Indirect Effects of Help Giving Practices

Responsiveness

Helpfulness

Competence

Confidence

*p < .05 ** p < .001.
Meta-Analytic Structural Equation Modelling Research Synthesis

**Studies:** Eight studies that included measures allowing us to trace the effects of capacity-building family-centred practices and family-systems intervention practices on parent-child interactions and child development

**Sample:** 910 preschoolers and their parents involved in different kinds of early childhood intervention and family support programs

**Hypothesis:** The influences of family-centred and family-systems intervention practices on parent-child interactions and child development would be indirect and mediated by both self-efficacy beliefs and parent well-being

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Model for Assessing the Effects of Different Predictor Variables on Parent-Child Interactions and Child Development
Meta-Analytic Structural Equation Modelling Results


- Indirect Effects of Help Giving Practices

- .70****
- .16*
- .55****
- .78***
- .33*
- .45****
- .27*
- .26****
- .12***
- .18****

* p < .05. ** p < .01. *** p < .001. **** p < .0001.
Meta-Analytic Structural Equation Modeling Results

- Capacity-Building Help Giving Practices → Family-Systems Intervention Practices: 0.70****
- Family-Systems Intervention Practices → Self-Efficacy Beliefs: 0.78***
- Self-Efficacy Beliefs → Parent Well-Being: 0.27*
- Parent Well-Being → Parent-Child Interactions: 0.26****
- Parent-Child Interactions → Child Development: 0.18****
- Capacity-Building Help Giving Practices → Indirect Effects of Help Giving Practices: 0.16*
- Indirect Effects of Help Giving Practices → Parent-Child Interactions: 0.26****
- Parent-Child Interactions → Child Development: 0.12***

* p < .05. ** p < .01. *** p < .001. **** p < .0001.
Meta-Analytic Structural Equation Modeling Results

Capacity-Building Help Giving Practices → .70**** Family-Systems Intervention Practices

Family-Systems Intervention Practices → .78*** Self-Efficacy Beliefs

Self-Efficacy Beliefs → .33* Parent Well-Being

Parent Well-Being → .45**** Indirect Effects of Help Giving Practices

Indirect Effects of Help Giving Practices → .55**** Indirect Effects of Help Giving Practices

Indirect Effects of Help Giving Practices → .16* Parent-Child Interactions

Parent-Child Interactions → .26**** Child Development

Child Development → .18**** Parent-Child Interactions

Parent-Child Interactions → .33* Parent Well-Being

Parent Well-Being → .27* Parent-Child Interactions

Parent-Child Interactions → .55**** Indirect Effects of Help Giving Practices

* p < .05. ** p < .01. *** p < .001. **** p < .0001.
Meta-Analytic Structural Equation Modelling of Family Capacity-Building Early Intervention Practices on Parent and Child Outcomes

Carl J. Dunst  Melinda Raab  Deborah W. Hamby  Carol M. Trivette

*Studies:* 59 studies of parents and their infants and toddlers with disabilities or developmental delays involved in early childhood intervention programs

*Sample:* The final sample size for the MASEM is expected to include more than 15,000 parents and children.

*Hypotheses:* (1) Early intervention provided in a family-centred manner will have more positive effects on parent outcomes. (2) Family-centred practices will be indirectly related to parent well-being and parent-child outcomes mediated by self-efficacy beliefs. (3) Parenting self-efficacy beliefs will be directly related to parent-child interactions and indirectly related to child outcomes mediated by parent well-being.

*aInstitute for Education Sciences Development Grant (study in progress).*
Model for Evaluating the Influences of Process and Structural Early Intervention of Parent, Parent-Child, and Child Outcomes
Variables Included in the Model and Analyses

- Parent/Family Background Variables
- Child Background Variables
- Early Intervention Structural Variables
- Early Intervention Process Variables
- Parent Self-Efficacy Beliefs
- Parent Stress and Well-Being
- Parent-Child Interactions
- Child Behavioural Outcomes
- Child Developmental Outcomes
Early Intervention Variables

**Structural Variables**
- Child age at the start of intervention, length of intervention
- Type of child services (special instruction/education, speech and language pathology, occupational therapy, physical therapy)
- Hours of child intervention, frequency of child intervention, intensity of child services
- Length of parent involvement, frequency of parent contact with early intervention staff

**Process Variables**
- Family-centred practices, working alliance, relational help giving practices, participatory help giving practices
Types of Planned Analyses

• Direct effects of the process and structural early intervention variables on the parent measures (self-efficacy beliefs, parent well-being, parent-child interaction)

• Indirect effects of the process early intervention measures on the parent measures mediated by the structural early intervention measures

• The mediated relationships among variables in the SEM model to identify pathways of influence

• The moderating effects of parent, family, and child background variables on the relationships between the other variables in the model
Direct Effects of Early Intervention on the Parent and Parent-Child Outcomes

- Early intervention can be assessed as either or both measured and latent variables
- Any of the other constructs in the model can also be assessed as either measured or latent variables including the child behavioral and developmental outcomes
Indirect Effects of Early Intervention on the Study Outcomes

- Indirect or mediated effects are estimated from the products of two or more direct effects.
- The indirect effect of process early intervention variables on parent well-being, for example, are determined from the product of $\beta_1 \times \beta_2$. 

\[
\text{Process Early Intervention Variables} \xrightarrow{\beta_1} \text{Parent Self-Efficacy Beliefs} \xrightarrow{\beta_2} \text{Parent Well-Being} \\
\text{Structural Early Intervention Variables} \xrightarrow{\beta_3} \text{Parent Well-Being} \\
\text{Structural Early Intervention Variables} \xrightarrow{\beta_4} \text{Parent-Child Interactions} \xrightarrow{\beta_7} \text{Child Outcomes} \\
\text{Structural Early Intervention Variables} \xrightarrow{\beta_5} \text{Parent-Child Interactions} \xrightarrow{\beta_9} \text{Child Outcomes} \\
\text{Structural Early Intervention Variables} \xrightarrow{\beta_6} \text{Parent-Child Interactions} \xrightarrow{\beta_8} \text{Child Outcomes}
Moderators of the Relationships Between Early Intervention and the Study Outcomes

- Moderator analyses “tell us” if the relationships between any two variables in the model are different at different levels of moderator variables (e.g., low SES vs. high SES)
- These types of analyses can help identify the conditions under which process and structural early intervention variables have similar or different consequences
Conclusions

• Evaluation of basic tenets of social systems and family systems theory has necessitated the use of different types of research methodologies.

• Research findings to date generally provide support for the hypothesized relationships between the variables of “interest” in the family systems model and child, parent, and family outcomes.

• Many of the relationships in the family systems model are mediational in nature rather than direct as has been suggested by other researchers and practitioners.

• Findings from our research on family-centred practices, capacity-building help giving practices, and other practitioner interactional styles indicate that how other interventions are provided matters a great deal if the interventions are likely to have optimal positive benefits.
PowerPoint presentation is available at www.puckett.org