Observing and Measuring Parent-Child Interaction— It's Worth It!

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Outline

- PCI Overview
- Individual practice application
- Program level application
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Parent Child Interaction Scales (PCI)

- Developed by Dr. Kathryn Barnard to assess the early relationship between parents and children as the main predictor of outcomes across development.
- PCI scales are used internationally
- PCI scales are used extensively by clinicians to
  - Guide intervention focus and activities
  - Measure change in dyadic interaction
- 100's of research studies have relied on PCI to
  - Document intervention effects
  - Report program outcomes to funders
  - Predict parent and child outcomes

PCI Internationally

Diverse Reach of PCI

Specific Populations of Interest	Author(s)	Year
Australia	Treyvaud, Rogers, Matthews, & Allen	2010
Bangladesh	Frith, Naved, Ekstrom, Rasmussen, & Frongillo	2009
Aboriginal Canadians	Letourneau, Hungler, & Fisher	2005
Japanese	Hirose, et al. Loo, Ohgi, & Howard Teramoto, Hirose, & Bakeman	2007 2005 2010
Mexican American or Latinos	Kolobe[a] Zahr Arevalo, Kolobe, Arnold Reifsnider, Shin, Todd, Jeong, Gallagher, Moramarco	2004 2000 2014 2016
South Africa	Bigelow, Littlejohn, Bergman, & McDonald[a]	2010
United States , primarily African American lower income families	CANDEL study	2015
United States (nationally representative sample N > 10,000)	Bronte-Tinkew, Zaslow, Capps, Horowitz, & McNamara Fuller, Bein, Bridges, Halfon, Jung, Rabe-Hesketh et al.[a] Page, Wilhelm, Gamble, & Card[a]	2007 2010 2010
English	Mischenko, Cheater, & Street	2004
Rural Costa Rica	Dudani, Till, and Joode	2013

Specific Subpopulations

Specific Sub Populations

Specific Characteristics of Interest	Author(s)	Year
Adolescent mothers	Sadler, Swartz, & Ryan-Krause	2003
	Sadler, Swartz, & Ryan-Krause[a]	2007
	Koniak-Griffin, Anderson, Brecht, Verzemnieks, Lesser, & Kim[a]	2001
	Koniak-Griffin, Verzemnieks, Anderson, Brecht et al.[a]	2002
	Oxford & Spieker	2003
	Drummond, Letourneau, Neufeld, Stewart & Weir	2006
	Luster, Bates, Fitzgerald, Vandenbelt & Key	2008
	Gaffney, Barndt-Maglio, Myers, & Kollar	2000
	Luster & Vandenbelt	2002
	Komoto, Hirose, Okamitsu	2013
Alcohol Exposure in Utero	Williams Brown, Carmichael Olson, & Croninger	2010
Autism		
Brain Injury	Badr, Garg, & Kamath	2006
Bottle Feeding	Ventura & Golden	2015
	Golen, Ventura	2015
Breast Feeding	Bigelow, Power, Gillis, Maclellan-Peters, Alex, and McDonald	2013
	Jones	2013
Cognitive Development	Larson, Russ, Nelson, Olson, Halfon	2015
	Pendry, Adam	2013
Cocaine Exposure	Beeghly, Frank, Rose-Jacobs, Cabral & Tronick	2003
	Minnes, Singer, Arendt, & Satayathum	2005
Disabled Caregivers	Malouf, Redshaw, Kurinczuk, and Gray	2014
Down Syndrome	Mitchell, Hauser-Cram, Crossman	2014

Specific Subpopulations

Specific Characteristics of Interest	Author(s)	Year
Food Insecurity	Zaslow, Bronte-Tinkew, Capps, Horowitz, Moore, & Weinstein	2009
Failure to Thrive	Stewart & Meyer	2004
Fathers	Nakamura, Stewart, & Tatarka	2000
	Harrison, Magill-Evans, & Sadoway	2001
	Goodman[a]	2008
	McKelvey, Bokony, Swindle, Conners-Burrow, Schiffman, & Fitzgerald	2011
	Yago, Hirose, Okamitsu, Okabayashi	2014
Genetics/Temperament	Roisman & Fraley	2006
Gastroesophageal Reflux	Neu, Schmiege, Pan	2014
Lower Income	Schiffman, Omar, & McKelvey	2003
	Banerjee & Tamis-Lemonda	2007
	Kim, Hwan	2013
Low Birth Weight	Lynch, Brooks	2013
Maltreatment Risk	Duggan, Berlin, Cassidy, Burrell, & Tandon [a]	2002
	Huebner [a]	2009
	Oxford, Speiker, Fleming, & Lohr	2016
	Spieker, Oxford, Kelly, Nelson, & Fleming,	2012
Motor Delay	Wang, Morgan, Hwang, Chen, & Liao	2014
Meta Analyses or Reviews	Bakermans-Kranenberg, Van Ijzendoorn, & Juffer	2008
	Elliott, Demianczuk	2014
	Dallay, Guedeney	2016
	Tanninen, Haggman-Laitila	2015
	Skouteris, McCabe, Ricciardelli	2012
	Beyea, Slattery	2013
	Chertok, McCrone, Parker, Nan	2014
	Mortensen, Mastergeorge	2014
	Tryphonopoulos, Letourneau	2016

Specific Subpopulations

Specific Characteristics of Interest	Author(s)	Year
Orofacial Clefts	Collet & Speltz	2007
Obesity	Anderson & Lemeshow	2014
Oxytocin	Miura, Fujiwara, Osawa	2015
Older Mothers	Sonobe, Usui, Hiroi, Hiramatsu, Nekoda, & Hirose	2016
Preterm Infants	Glazebrook, Marlow, Croudace, Johnson, White, & Whitelaw Chiu & Anderson [a] Treyvaud, Rogers, Matthews, & Allen Goyal, Teeters, Ammerman White-Traut, Norr, Fabiyi, Rankin, Li, Li Liu	2007 2009 2009 2013 2013
Postpartum Depression	Horowitz, Murphy, Van Doesum, Hosman, Kersten-Alvarez	2013
Social Competence	Rispoli, McGoey, Koziol, Schreiber	2013
Sleep patterns in infants	Anh, Williamson, Seo, & Sadeh	2016
Social Risk	Elliott, Demianczuk, Robertson	2014
Skin to Skin Contact & Breast Feeding	Alex, MacLellan-Peters	2013
Twin & Preterm births	Beer, Israel, Johnson, Marlow, Whitelaw, Glazebrook	2013

Program Evaluation

- PCI is used extensively in program evaluations
- Evaluations may use individual subscales:
  - Contingency e.g. Serve and Return items
  - Cognitive Growth Fostering
  - Total scale score
  - Child responsiveness scale score (recently used in Autism research)

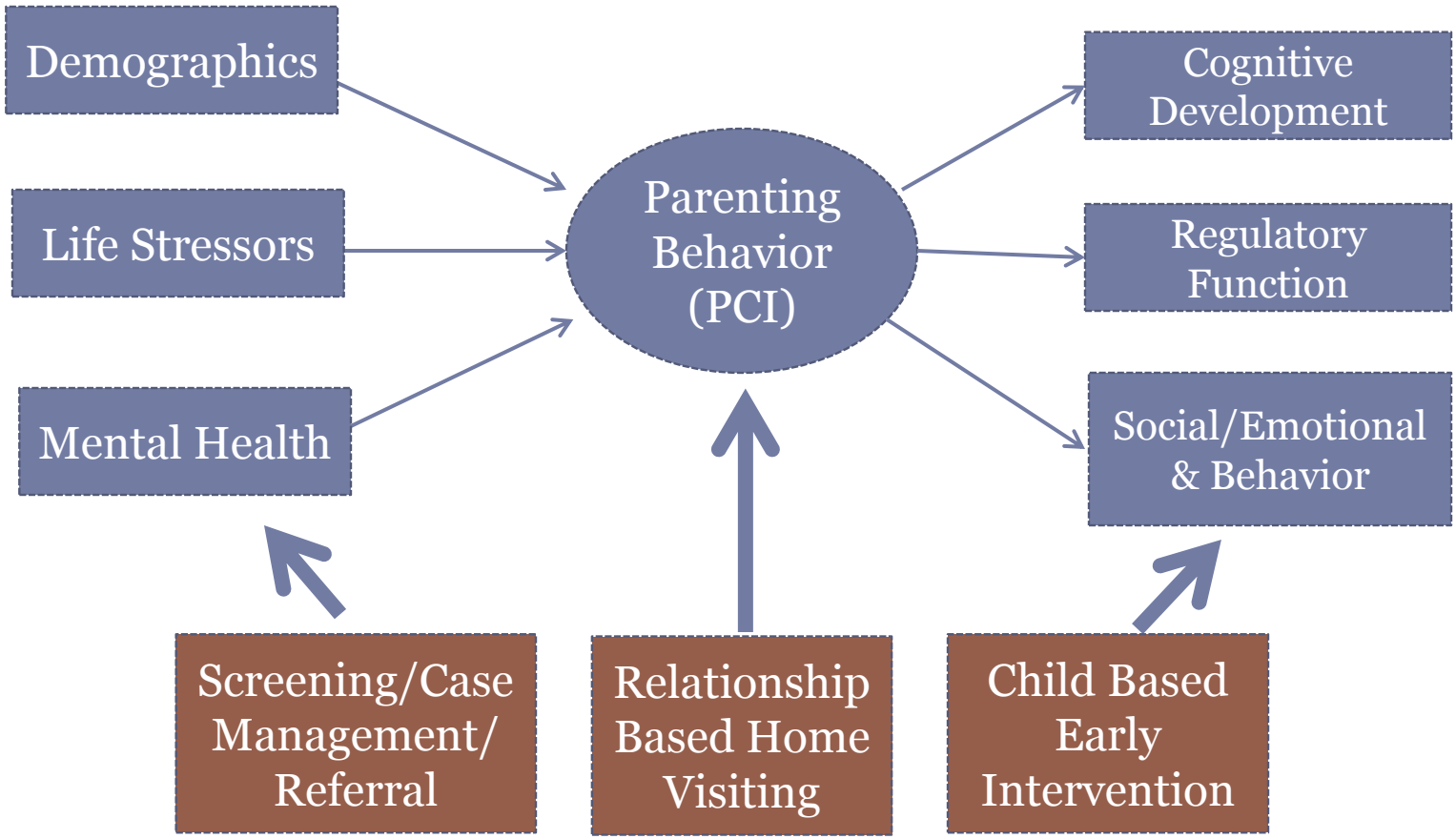
- Included in several meta analyses and reviews of programs

Specific Named Program Evaluation	Author(s)	Year
Breast is Best	Shloim, Rudolf, Feltbower	2015
Comprehensive Child Development	Goodson, Layzer, St. Pierre, Bernstein, & Lopez	2000
Communicating and Relating Effectively (CARE)	Horowitz, Murphy, Gregory, Wojcil, Pulcini, Solon	2013
Early Head Start	Horodynski & Gibbons Lugo-Gil & Tamis-LeMonda [a]	2004 2008
Healthy Families Alaska Healthy Steps Pediatric Care	Duggan, Caldera, Rodriguez, Burrell, Rohde, & Crowne Caughy, Huang, Miller & Genevro	2007 2004
Infant Sleep Health Program	Jang, Kim	2015
Kangaroo Care	Athanasopoulou, Fox	2014
Keys to Caregiving intervention	Drummond, Letourneau, Neufeld, Stewart, & Weir Jung, Short, Letourneau, & Andrews Letourneau, Drummond, Fleming, Kysela, McDonald, & Stewart Magill-Evans, Harrison, Benzies, Gierl, & Kimak	2008 2007 2001 2007
Mothers and Toddlers Program®	Suchman, DeCoste, Castiglioni, Legow & Mayes [a] Suchman, DeCoste, Castiglioni, McMahon, Rounsaville, & Mayes	2008 2010
Newborn Behavior Observation	Bartram, Barlow, & Wolke	2015
Nurse Family Partnership	Kitzman, Olds, Henderson, Hanks, Cole et al.,	1997
NICU Family Support	Browne & Talmi	2005
Parent Support Program	Drummond, Weir, & Kysela	2002
Parent Baby Interaction Program	Glazebrook, Marko, Isreal, Croudace, Johnson, White	2007
Primary Care Positive Interactions	Shah, Kennedy, Clark, Bauer, Schwartz	2016
Promoting First Relationships™	Spieker, Oxford, Kelly, Nelson & Fleming [a] Oxford, Spieker, Fleming, Lohr Kelly, Buehlman & Caldwell [a]	2012 2016 2000
Right from the Start	Bohr, Halpert, Chan, Lishak, & Brightling [a]	2010

Improve Parenting Behavior by Improving Parent Circumstances

Improve Parenting Behavior by Working with the Parent Directly

Improve Child Outcomes Because Parents are Better Able to Meet Child's Needs



Papousek, Schieche, and Wurmser (Eds). Disorders of Behavioral and Emotional Regulation in the First Years of Life

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Parent Child Interaction Scales

- Two scales
  - Teaching –Ask to teach the child something that they don't know how to do but are ready to learn.
    - Intended for children up to age 3 years
    - 1 to 5 minutes
  - Feeding - Ask the parent to feed the child as they normally would.
    - Intended for children up to age 1 year
    - 5 to 20 minutes (sometimes more)

PCI Teaching Includes

Serve and Return

Verbal Exchanges

Scaffolding (adjusts the task developmentally)

Emotional Support

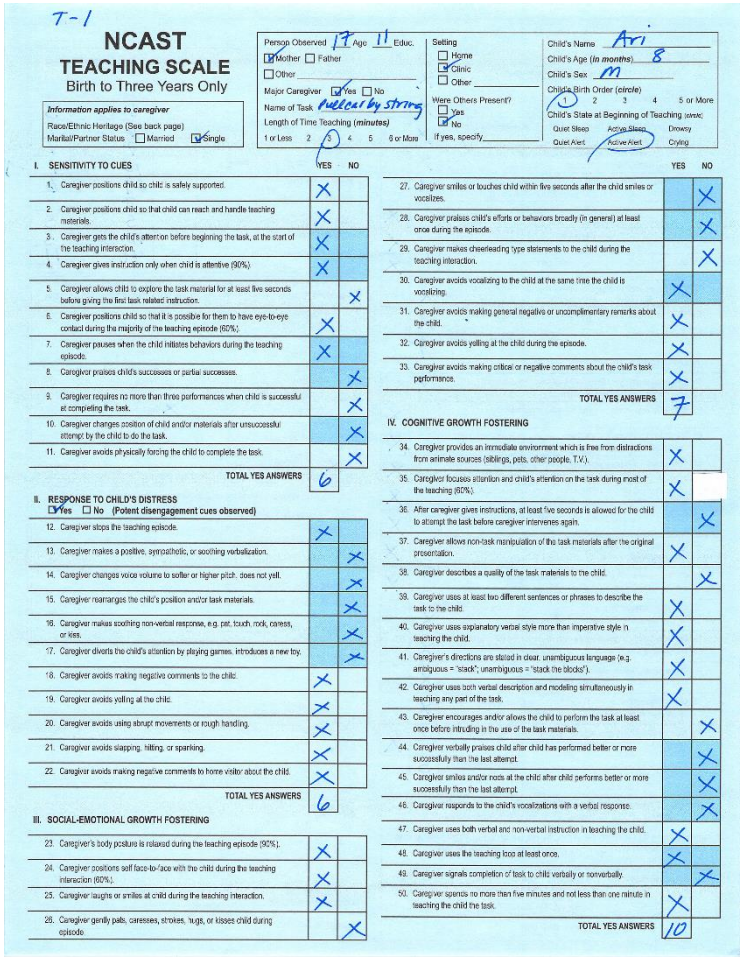
Parental Intrusion

Child's Contributions

Child's Responsiveness

How do we navigate this task together?

Teaching Scale



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NCAST
TEACHING SCALE
Birth to Three Years Only

Information applies to caregiver
Race/Ethnic Heritage (See back page)
Marital/Partner Status ☐ Married ☑ Single

Person Observed 17 Age 11 Educ.
☑ Mother ☐ Father
☐ Other
Major Caregiver ☑ Yes ☐ No
Name of Task Pullcar by string
Length of Time Teaching (*minutes*)
1 or Less 2 (3) 4 5 6 or More

Setting
☐ Home
☑ Clinic
☐ Other
Were Others Present?
☐ Yes
☑ No
If yes, specify

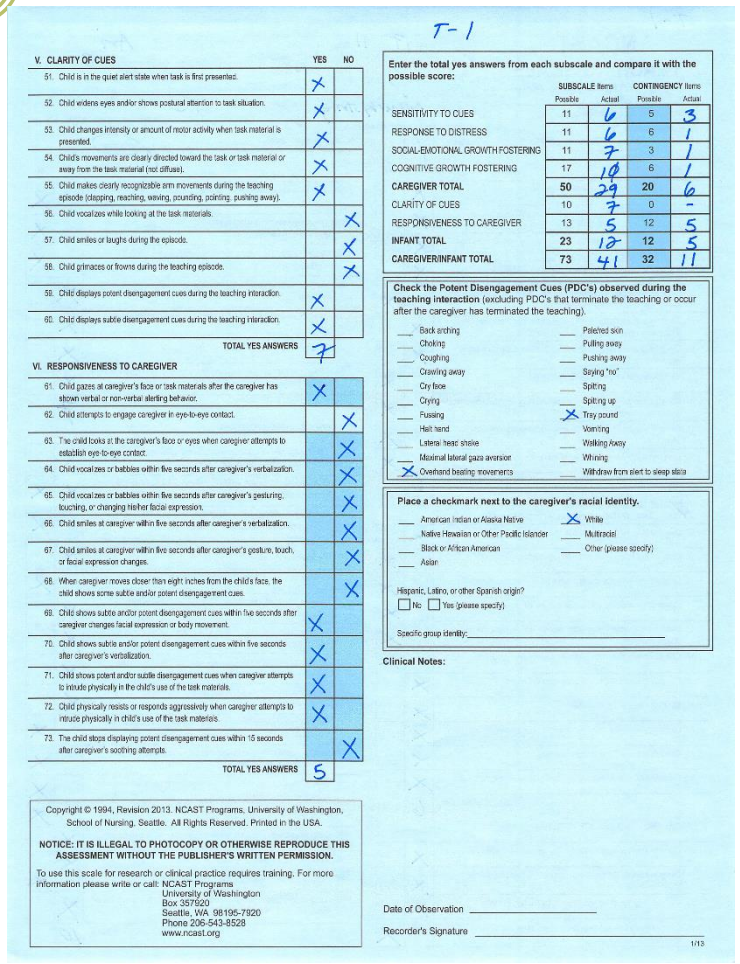
Child's Name Ari
Child's Age (*in months*) 8
Child's Sex M
Child's Birth Order (*circle*)
(1) 2 3 4 5 or More
Child's State at Beginning of Teaching (*circle*)
Quiet Sleep Active Sleep Drowsy
Quiet Alert (Active Alert) Crying

I. SENSITIVITY TO CUES	YES	NO
1. Caregiver positions child so child is safely supported.	X	
2. Caregiver positions child so that child can reach and handle teaching materials.	X	
3. Caregiver gets the child's attention before beginning the task, at the start of the teaching interaction.	X	
4. Caregiver gives instruction only when child is attentive (90%).	X	
5. Caregiver allows child to explore the task material for at least five seconds before giving the first task related instruction.		X
6. Caregiver positions child so that it is possible for them to have eye-to-eye contact during the majority of the teaching episode (60%).	X	
7. Caregiver pauses when the child initiates behaviors during the teaching episode.	X	
8. Caregiver praises child's successes or partial successes.		X
9. Caregiver requires no more than three performances when child is successful at completing the task.		X
10. Caregiver changes position of child and/or materials after unsuccessful attempt by the child to do the task.		X
11. Caregiver avoids physically forcing the child to complete the task.		X
TOTAL YES ANSWERS	6	

II. RESPONSE TO CHILD'S DISTRESS ☑ Yes ☐ No (Potent disengagement cues observed)	YES	NO
12. Caregiver stops the teaching episode.	X	
13. Caregiver makes a positive, sympathetic, or soothing verbalization.		X
14. Caregiver changes voice volume to softer or higher pitch, does not yell.		X
15. Caregiver rearranges the child's position and/or task materials.		X
16. Caregiver makes soothing non-verbal response, e.g. pat, touch, rock, caress, or kiss.		X
17. Caregiver diverts the child's attention by playing games, introduces a new toy.		X
18. Caregiver avoids making negative comments to the child.	X	
19. Caregiver avoids yelling at the child.	X	
20. Caregiver avoids using abrupt movements or rough handling.	X	
21. Caregiver avoids slapping, hitting, or spanking.	X	
22. Caregiver avoids making negative comments to home visitor about the child.	X	
TOTAL YES ANSWERS	6	

III. SOCIAL-EMOTIONAL GROWTH FOSTERING	YES	NO
23. Caregiver's body posture is relaxed during the teaching episode (90%).	X	
24. Caregiver positions self face-to-face with the child during the teaching interaction (60%).	X	
25. Caregiver laughs or smiles at child during the teaching interaction.	X	
26. Caregiver gently pats, caresses, strokes, hugs, or kisses child during episode.		X
27. Caregiver smiles or touches child within five seconds after the child smiles or vocalizes.		X
28. Caregiver praises child's efforts or behaviors broadly (in general) at least once during the episode.		X
29. Caregiver makes cheerleading type statements to the child during the teaching interaction.		X
30. Caregiver avoids vocalizing to the child at the same time the child is vocalizing.	X	
31. Caregiver avoids making general negative or uncomplimentary remarks about the child.	X	
32. Caregiver avoids yelling at the child during the episode.	X	
33. Caregiver avoids making critical or negative comments about the child's task performance.	X	
TOTAL YES ANSWERS	7	

IV. COGNITIVE GROWTH FOSTERING	YES	NO
34. Caregiver provides an immediate environment which is free from distractions from animate sources (siblings, pets, other people, T.V.).	X	
35. Caregiver focuses attention and child's attention on the task during most of the teaching (80%).	X	
36. After caregiver gives instructions, at least five seconds is allowed for the child to attempt the task before caregiver intervenes again.		X
37. Caregiver allows non-task manipulation of the task materials after the original presentation.	X	
38. Caregiver describes a quality of the task materials to the child.		X
39. Caregiver uses at least two different sentences or phrases to describe the task to the child.	X	
40. Caregiver uses explanatory verbal style more than imperative style in teaching the child.	X	
41. Caregiver's directions are stated in clear, unambiguous language (e.g. ambiguous = "stack"; unambiguous = "stack the blocks").	X	
42. Caregiver uses both verbal description and modeling simultaneously in teaching any part of the task.	X	
43. Caregiver encourages and/or allows the child to perform the task at least once before intruding in the use of the task materials.		X
44. Caregiver verbally praises child after child has performed better or more successfully than the last attempt.		X
45. Caregiver smiles and/or nods at the child after child performs better or more successfully than the last attempt.		X
46. Caregiver responds to the child's vocalizations with a verbal response.		X
47. Caregiver uses both verbal and non-verbal instruction in teaching the child.	X	
48. Caregiver uses the teaching loop at least once.	X	
49. Caregiver signals completion of task to child verbally or nonverbally.		X
50. Caregiver spends no more than five minutes and not less than one minute in teaching the child the task.	X	
TOTAL YES ANSWERS	10	



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V. CLARITY OF CUES	YES	NO
51. Child is in the quiet alert state when task is first presented.	X	
52. Child widens eyes and/or shows postural attention to task situation.	X	
53. Child changes intensity or amount of motor activity when task material is presented.	X	
54. Child's movements are clearly directed toward the task or task material or away from the task material (not diffuse).	X	
55. Child makes clearly recognizable arm movements during the teaching episode (dapping, reaching, waving, pounding, pointing, pushing away).	X	
56. Child vocalizes while looking at the task materials.		X
57. Child smiles or laughs during the episode.		X
58. Child grimaces or frowns during the teaching episode.		X
59. Child displays potent disengagement cues during the teaching interaction.	X	
60. Child displays subtle disengagement cues during the teaching interaction.	X	
TOTAL YES ANSWERS	7	

VI. RESPONSIVENESS TO CAREGIVER	YES	NO
61. Child gazes at caregiver's face or task materials after the caregiver has shown verbal or non-verbal alerting behavior.	X	
62. Child attempts to engage caregiver in eye-to-eye contact.		X
63. The child looks at the caregiver's face or eyes when caregiver attempts to establish eye-to-eye contact.		X
64. Child vocalizes or babbles within five seconds after caregiver's verbalization.		X
65. Child vocalizes or babbles within five seconds after caregiver's gesturing, touching, or changing his/her facial expression.		X
66. Child smiles at caregiver within five seconds after caregiver's verbalization.		X
67. Child smiles at caregiver within five seconds after caregiver's gesture, touch, or facial expression changes.		X
68. When caregiver moves closer than eight inches from the child's face, the child shows some subtle and/or potent disengagement cues.		X
69. Child shows subtle and/or potent disengagement cues within five seconds after caregiver changes facial expression or body movement.	X	
70. Child shows subtle and/or potent disengagement cues within five seconds after caregiver's verbalization.	X	
71. Child shows potent and/or subtle disengagement cues when caregiver attempts to intrude physically in the child's use of the task materials.	X	
72. Child physically resists or responds aggressively when caregiver attempts to intrude physically in child's use of the task materials.	X	
73. The child stops displaying potent disengagement cues within 15 seconds after caregiver's soothing attempts.		X
TOTAL YES ANSWERS	5	

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To use this scale for research or clinical practice requires training. For more information please write or call: NCAST Programs
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Seattle, WA 98195-7920
Phone 206-543-8528
www.ncast.org

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Enter the total yes answers from each subscale and compare it with the possible score:

	SUBSCALE Items Possible	SUBSCALE Items Actual	CONTINGENCY Items Possible	CONTINGENCY Items Actual
SENSITIVITY TO CUES	11	6	5	3
RESPONSE TO DISTRESS	11	6	6	1
SOCIAL-EMOTIONAL GROWTH FOSTERING	11	7	3	1
COGNITIVE GROWTH FOSTERING	17	10	6	1
CAREGIVER TOTAL	**50**	**29**	**20**	**6**
CLARITY OF CUES	10	7	0	-
RESPONSIVENESS TO CAREGIVER	13	5	12	5
INFANT TOTAL	**23**	**12**	**12**	**5**
CAREGIVER/INFANT TOTAL	**73**	**41**	**32**	**11**

Check the Potent Disengagement Cues (PDC's) observed during the teaching interaction (excluding PDC's that terminate the teaching or occur after the caregiver has terminated the teaching).

___ Back arching	___ Pale/red skin
___ Choking	___ Pulling away
___ Coughing	___ Pushing away
___ Crawling away	___ Saying "no"
___ Cry face	___ Spitting
___ Crying	___ Spitting up
___ Fussing	X Tray pound
___ Halt hand	___ Vomiting
___ Lateral head shake	___ Walking Away
___ Maximal lateral gaze aversion	___ Whining
X Overhand beating movements	___ Withdraw from alert to sleep state

Place a checkmark next to the caregiver's racial identity.

___ American Indian or Alaska Native	X White
___ Native Hawaiian or Other Pacific Islander	___ Multiracial
___ Black or African American	___ Other (please specify)
___ Asian	

Hispanic, Latino, or other Spanish origin?
☐ No ☐ Yes (please specify)

Specific group identity: _____

Clinical Notes:

Date of Observation _____

Recorder's Signature _____

1/13

Teaching Scale

- Teaching Scale is unique because it introduces stress:
  - Adult agenda
    - Developmentally appropriate
    - Child's response to adult
    - Verbal assistance
    - Joyful, enhance the childs' sense of self as competent
    - Does the parent build on the serve-and-return possibilities?

- Can we navigate this task together?
- Am I able to respond to you in developmentally appropriate ways?

Co-Regulation of a Teaching Task

Findings with PCI Teaching

- Teaching scale longitudinally predicts
  - Language (expressive and receptive) outcomes
  - Cognitive outcomes (IQ)
  - Behavior and emotional behavior problems in children
  - Secure attachment
  - Infant task persistence
  - Positive feeding behaviors
  - Regulatory capacity of infant (cortisol, behavioral regulation0
- Response to Distress Scale (RTD)- 10 items
  - Low response to distress predicts punishment (1,2, 3 yrs)
  - Low RTD at 3 months of age predicts disorganized attachment
  - Observer rated child regulated behavior during toddler years

PCI Feeding Scale

Serve and Return

Pacing

Social Engagement

Verbal Exchanges

Emotional Support

Intrusive Control

Child's Contributions

Child's Responsiveness

How do we navigate this routine interaction together?

Feeding Scale

- Feeding scale capitalizes on a routine interaction:
  - It happens at least 2000 times in the first year of life
  - Unique opportunity to observe the natural state of serve-and-return
  - Can be a source of tension or stress for the parent
  - Navigation of increasing autonomy
  - Parents often ask/worry about feeding –provides an opening

- How do we navigate this routine interaction together?
- Is feeding a source of tension or joy and pleasure?

Co-Regulation of a Feeding Interaction

Findings with PCI Teaching

- Feeding Scale- PCI - Predicts
  - Language outcomes
  - Cognitive outcomes
  - Breast feeding longevity
  - Positive feeding behaviors of child
  - Maternal feeding behavior: low sensitivity and weight gain and pressure to feed
- Feeding Scale- PCI - Unique Contributions
  - Preterm or low birth weight dyads
  - Nutrition and weight
  - Breast feeding longevity
  - Skin-to-skin contact
  - Elderly patients in nursing care
  - Feeding under medical or birth complications (orofacial clefts)

Application in Intervention Practice

LINKING THE PCI SCALE TO THE NEEDS OF THE DYAD

Use the scale to identify strengths and challenges

*Comment positively to parents on their strengths.

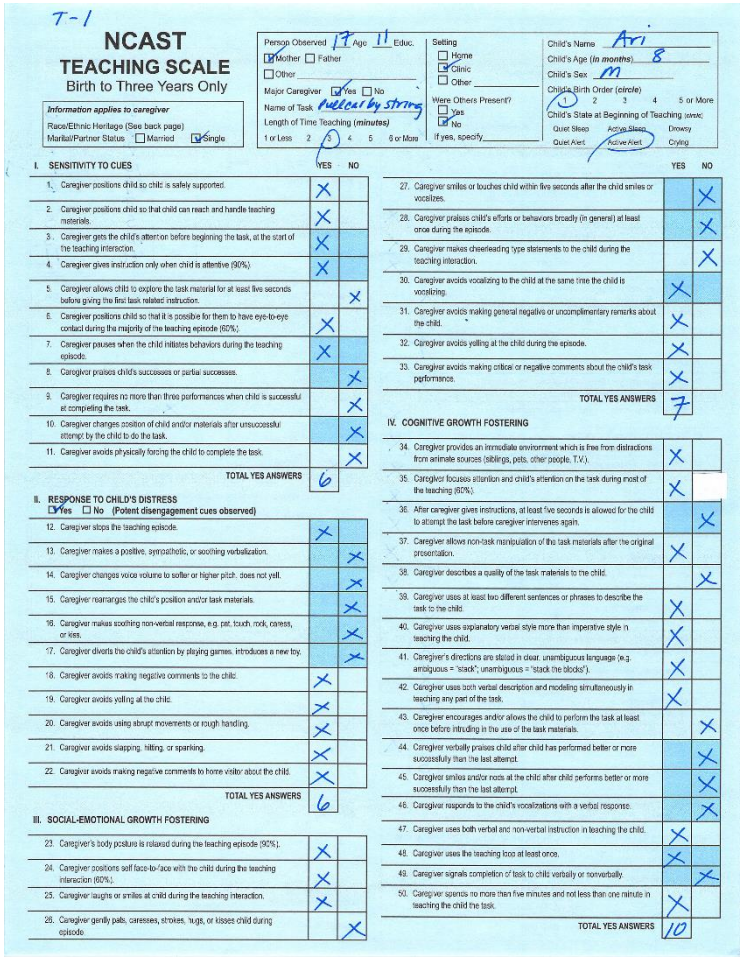
*Gently introduce games and activities to address challenges.

Linking our practice to PCI

Video Time 1

Ari's Pre Teaching scale

Child Serve & Return 5 out of 12
Total Serve & Return 11 out of 32



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NCAST TEACHING SCALE
Birth to Three Years Only

Information applies to caregiver
Race/Ethnic Heritage (See back page)
Marital/Partner Status ☐ Married ☑ Single

Person Observed 17 Age 11 Educ.
☑ Mother ☐ Father
☐ Other
Major Caregiver ☑ Yes ☐ No
Name of Task Pullcar by string
Length of Time Teaching (*minutes*)
1 or Less 2 3 4 5 6 or More

Setting
☐ Home
☑ Clinic
☐ Other
Were Others Present?
☐ Yes
☑ No
If yes, specify

Child's Name Ari
Child's Age (*in months*) 8
Child's Sex M
Child's Birth Order (*circle*)
1 2 3 4 5 or More
Child's State at Beginning of Teaching (*circle*)
Quiet Sleep Active Sleep Drowsy
Quiet Alert Active Alert Crying

I. SENSITIVITY TO CUES	YES	NO
1. Caregiver positions child so child is safely supported.	X	
2. Caregiver positions child so that child can reach and handle teaching materials.	X	
3. Caregiver gets the child's attention before beginning the task, at the start of the teaching interaction.	X	
4. Caregiver gives instruction only when child is attentive (90%).	X	
5. Caregiver allows child to explore the task material for at least five seconds before giving the first task related instruction.		X
6. Caregiver positions child so that it is possible for them to have eye-to-eye contact during the majority of the teaching episode (60%).	X	
7. Caregiver pauses when the child initiates behaviors during the teaching episode.	X	
8. Caregiver praises child's successes or partial successes.		X
9. Caregiver requires no more than three performances when child is successful at completing the task.		X
10. Caregiver changes position of child and/or materials after unsuccessful attempt by the child to do the task.		X
11. Caregiver avoids physically forcing the child to complete the task.		X
TOTAL YES ANSWERS	6	

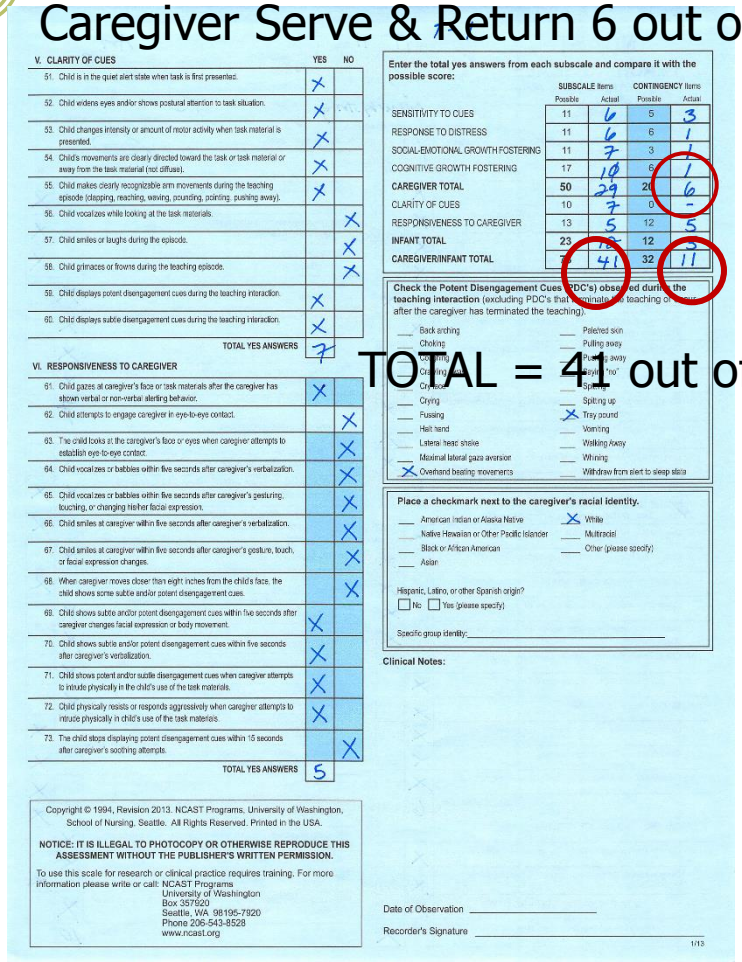
II. RESPONSE TO CHILD'S DISTRESS ☐ Yes ☐ No (Potent disengagement cues observed)		
12. Caregiver stops the teaching episode.	X	
13. Caregiver makes a positive, sympathetic, or soothing verbalization.		X
14. Caregiver changes voice volume to softer or higher pitch, does not yell.		X
15. Caregiver rearranges the child's position and/or task materials.		X
16. Caregiver makes soothing non-verbal response, e.g. pat, touch, rock, caress, or kiss.		X
17. Caregiver diverts the child's attention by playing games, introduces a new toy.		X
18. Caregiver avoids making negative comments to the child.	X	
19. Caregiver avoids yelling at the child.	X	
20. Caregiver avoids using abrupt movements or rough handling.	X	
21. Caregiver avoids slapping, hitting, or spanking.	X	
22. Caregiver avoids making negative comments to home visitor about the child.	X	
TOTAL YES ANSWERS	6	

III. SOCIAL-EMOTIONAL GROWTH FOSTERING		
23. Caregiver's body posture is relaxed during the teaching episode (90%).	X	
24. Caregiver positions self face-to-face with the child during the teaching interaction (60%).	X	
25. Caregiver laughs or smiles at child during the teaching interaction.	X	
26. Caregiver gently pats, caresses, strokes, hugs, or kisses child during episode.		X
27. Caregiver smiles or touches child within five seconds after the child smiles or vocalizes.		X
28. Caregiver praises child's efforts or behaviors broadly (in general) at least once during the episode.		X
29. Caregiver makes cheerleading type statements to the child during the teaching interaction.		X
30. Caregiver avoids vocalizing to the child at the same time the child is vocalizing.	X	
31. Caregiver avoids making general negative or uncomplimentary remarks about the child.	X	
32. Caregiver avoids yelling at the child during the episode.	X	
33. Caregiver avoids making critical or negative comments about the child's task performance.	X	
TOTAL YES ANSWERS	7	

IV. COGNITIVE GROWTH FOSTERING		
34. Caregiver provides an immediate environment which is free from distractions from animate sources (siblings, pets, other people, T.V.).	X	
35. Caregiver focuses attention and child's attention on the task during most of the teaching (80%).	X	
36. After caregiver gives instructions, at least five seconds is allowed for the child to attempt the task before caregiver intervenes again.		X
37. Caregiver allows non-task manipulation of the task materials after the original presentation.	X	
38. Caregiver describes a quality of the task materials to the child.		X
39. Caregiver uses at least two different sentences or phrases to describe the task to the child.	X	
40. Caregiver uses explanatory verbal style more than imperative style in teaching the child.	X	
41. Caregiver's directions are stated in clear, unambiguous language (e.g. ambiguous = "stack"; unambiguous = "stack the blocks").	X	
42. Caregiver uses both verbal description and modeling simultaneously in teaching any part of the task.	X	
43. Caregiver encourages and/or allows the child to perform the task at least once before intruding in the use of the task materials.		X
44. Caregiver verbally praises child after child has performed better or more successfully than the last attempt.		X
45. Caregiver smiles and/or nods at the child after child performs better or more successfully than the last attempt.		X
46. Caregiver responds to the child's vocalizations with a verbal response.		X
47. Caregiver uses both verbal and non-verbal instruction in teaching the child.	X	
48. Caregiver uses the teaching loop at least once.	X	
49. Caregiver signals completion of task to child verbally or nonverbally.		X
50. Caregiver spends no more than five minutes and not less than one minute in teaching the child the task.	X	
TOTAL YES ANSWERS	10	

Caregiver Serve & Return 6 out of 20

TOTAL = 41 out of 73



V. CLARITY OF CUES	YES	NO
51. Child is in the quiet alert state when task is first presented.	X	
52. Child widens eyes and/or shows postural attention to task situation.	X	
53. Child changes intensity or amount of motor activity when task material is presented.	X	
54. Child's movements are clearly directed toward the task or task material or away from the task material (not diffuse).	X	
55. Child makes clearly recognizable arm movements during the teaching episode (clapping, reaching, waving, pounding, pointing, pushing away).	X	
56. Child vocalizes while looking at the task materials.		X
57. Child smiles or laughs during the episode.		X
58. Child grimaces or frowns during the teaching episode.		X
59. Child displays potent disengagement cues during the teaching interaction.	X	
60. Child displays subtle disengagement cues during the teaching interaction.	X	
TOTAL YES ANSWERS	7	

VI. RESPONSIVENESS TO CAREGIVER		
61. Child gazes at caregiver's face or task materials after the caregiver has shown verbal or non-verbal alerting behavior.	X	
62. Child attempts to engage caregiver in eye-to-eye contact.		X
63. The child looks at the caregiver's face or eyes when caregiver attempts to establish eye-to-eye contact.		X
64. Child vocalizes or babbles within five seconds after caregiver's verbalization.		X
65. Child vocalizes or babbles within five seconds after caregiver's gesturing, touching, or changing his/her facial expression.		X
66. Child smiles at caregiver within five seconds after caregiver's verbalization.		X
67. Child smiles at caregiver within five seconds after caregiver's gesture, touch, or facial expression changes.		X
68. When caregiver moves closer than eight inches from the child's face, the child shows some subtle and/or potent disengagement cues.		X
69. Child shows subtle and/or potent disengagement cues within five seconds after caregiver changes facial expression or body movement.	X	
70. Child shows subtle and/or potent disengagement cues within five seconds after caregiver's verbalization.	X	
71. Child shows potent and/or subtle disengagement cues when caregiver attempts to intrude physically in the child's use of the task materials.	X	
72. Child physically resists or responds aggressively when caregiver attempts to intrude physically in child's use of the task materials.	X	
73. The child stops displaying potent disengagement cues within 15 seconds after caregiver's soothing attempts.		X
TOTAL YES ANSWERS	5	

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Box 357920
Seattle, WA 98195-7920
Phone 206-543-8528
www.ncast.org

Enter the total yes answers from each subscale and compare it with the possible score:

	SUBSCALE Items Possible	SUBSCALE Items Actual	CONTINGENCY Items Possible	CONTINGENCY Items Actual
SENSITIVITY TO CUES	11	6	5	3
RESPONSE TO DISTRESS	11	6	6	1
SOCIAL-EMOTIONAL GROWTH FOSTERING	11	7	3	1
COGNITIVE GROWTH FOSTERING	17	10	6	1
CAREGIVER TOTAL	50	29	20	6
CLARITY OF CUES	10	7	6	-
RESPONSIVENESS TO CAREGIVER	13	5	12	5
INFANT TOTAL	23	12	12	5
CAREGIVER/INFANT TOTAL	73	41	32	11

Check the Potent Disengagement Cues (PDC's) observed during the teaching interaction (excluding PDC's that terminate the teaching or occur after the caregiver has terminated the teaching).

___ Back arching	___ Pulling away
___ Choking	___ Pushing away
___ Coughing	___ Sighing "no"
___ Crying	___ Spitting up
___ Fussing	X Tray pound
___ Halt hand	___ Vomiting
___ Lateral head shake	___ Walking Away
___ Maximal lateral gaze aversion	___ Whining
X Overhand beating movements	___ Withdraw from alert to sleep state

Place a checkmark next to the caregiver's racial identity.

___ American Indian or Alaska Native	X White
___ Native Hawaiian or Other Pacific Islander	___ Multiracial
___ Black or African American	___ Other (please specify)
___ Asian	

Hispanic, Latino, or other Spanish origin?
☐ No ☐ Yes (please specify)

Specific group identity: _____

Clinical Notes:

Date of Observation _____

Recorder's Signature _____

1/13

Intervention Plan

- BabyCue Cards
- Keys to Caregiving
- Discussion about serve & return
- Supportive, listening, reflective feedback, normalized thoughts and feelings
- Screened for Postpartum Mood Disorder
- Delivered in one-on-one sessions, also in group sessions

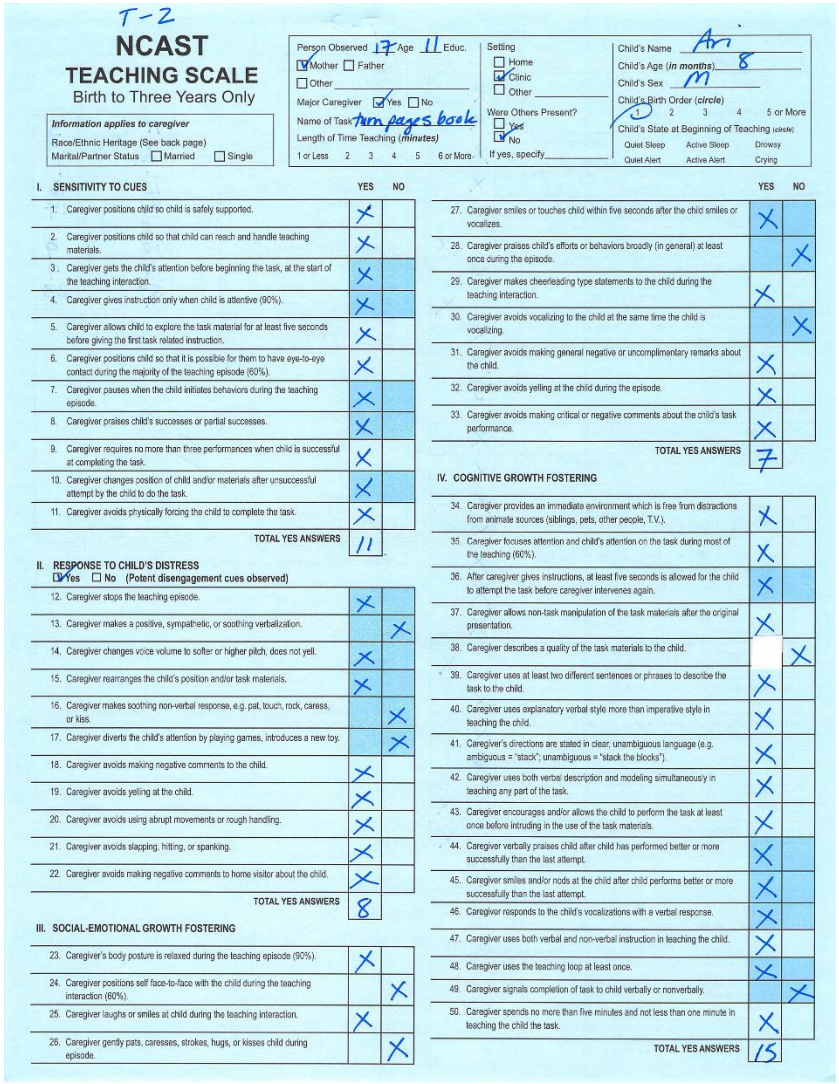
Video Time 2

Baby Serve & Return = 9 out of 12

Total Serve & Return = 23 out of 32

Caregiver Serve & Return = 14 out of 20

TOTAL = 59 out of 73



T-2

NCAST
TEACHING SCALE
Birth to Three Years Only

Information applies to caregiver
Race/Ethnic Heritage (See back page)
Marital/Partner Status ☐ Married ☐ Single

Person Observed 17 Age 11 Educ.
☑ Mother ☐ Father
☐ Other
Major Caregiver ☑ Yes ☐ No
Name of Task turn pages book
Length of Time Teaching (*minutes*)
1 or Less 2 3 4 5 6 or More

Setting
☐ Home
☑ Clinic
☐ Other
Were Others Present?
☐ Yes
☑ No
If yes, specify

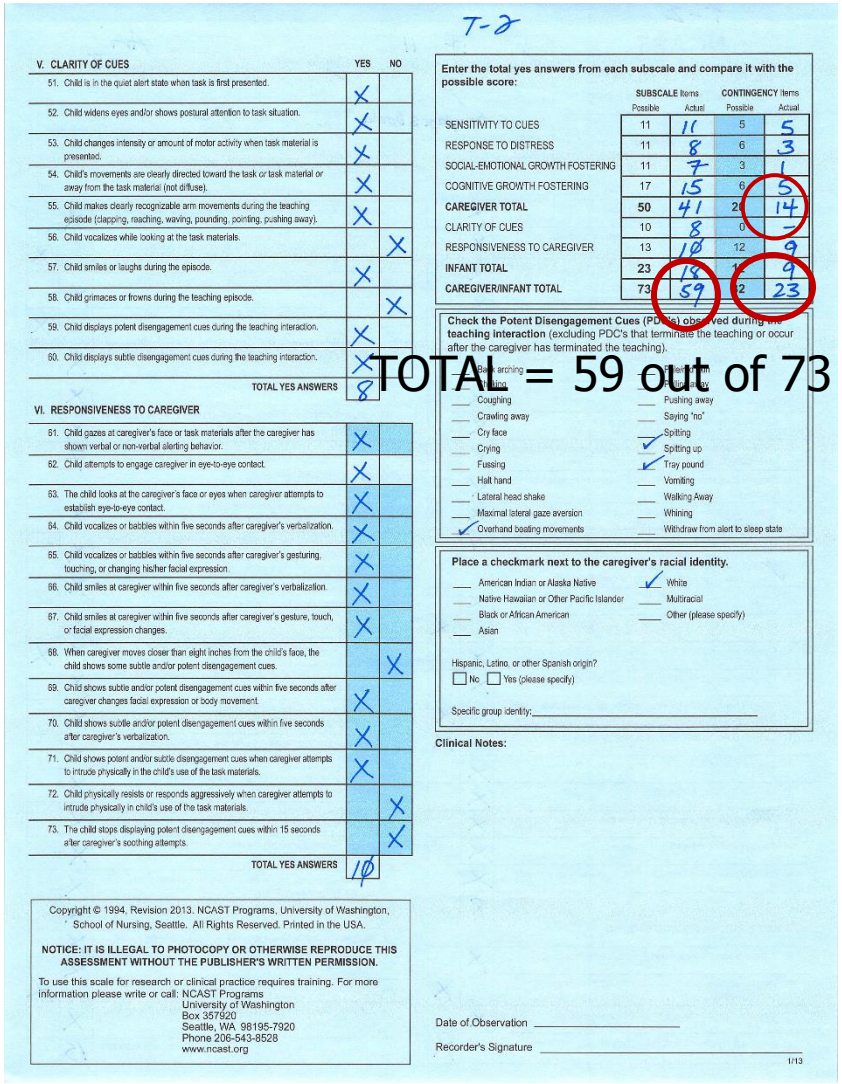
Child's Name Ari
Child's Age (*in months*) 8
Child's Sex M
Child's Birth Order (*circle*) 1 2 3 4 5 or More
Child's State at Beginning of Teaching (*circle*)
Quiet Sleep Active Sleep Drowsy
Quiet Alert Active Alert Crying

I. SENSITIVITY TO CUES	YES	NO
1. Caregiver positions child so child is safely supported.	X	
2. Caregiver positions child so that child can reach and handle teaching materials.	X	
3. Caregiver gets the child's attention before beginning the task, at the start of the teaching interaction.	X	
4. Caregiver gives instruction only when child is attentive (90%).	X	
5. Caregiver allows child to explore the task material for at least five seconds before giving the first task related instruction.	X	
6. Caregiver positions child so that it is possible for them to have eye-to-eye contact during the majority of the teaching episode (60%).	X	
7. Caregiver pauses when the child initiates behaviors during the teaching episode.	X	
8. Caregiver praises child's successes or partial successes.	X	
9. Caregiver requires no more than three performances when child is successful at completing the task.	X	
10. Caregiver changes position of child and/or materials after unsuccessful attempt by the child to do the task.	X	
11. Caregiver avoids physically forcing the child to complete the task.	X	
TOTAL YES ANSWERS	11	

II. RESPONSE TO CHILD'S DISTRESS ☑ Yes ☐ No (Potent disengagement cues observed)	YES	NO
12. Caregiver stops the teaching episode.	X	
13. Caregiver makes a positive, sympathetic, or soothing verbalization.		X
14. Caregiver changes voice volume to softer or higher pitch, does not yell.	X	
15. Caregiver rearranges the child's position and/or task materials.	X	
16. Caregiver makes soothing non-verbal response, e.g. pat, touch, rock, caress, or kiss.		X
17. Caregiver diverts the child's attention by playing games, introduces a new toy.		X
18. Caregiver avoids making negative comments to the child.	X	
19. Caregiver avoids yelling at the child.	X	
20. Caregiver avoids using abrupt movements or rough handling.	X	
21. Caregiver avoids slapping, hitting, or spanking.	X	
22. Caregiver avoids making negative comments to home visitor about the child.	X	
TOTAL YES ANSWERS	8	

III. SOCIAL-EMOTIONAL GROWTH FOSTERING	YES	NO
23. Caregiver's body posture is relaxed during the teaching episode (90%).	X	
24. Caregiver positions self face-to-face with the child during the teaching interaction (60%).		X
25. Caregiver laughs or smiles at child during the teaching interaction.	X	
26. Caregiver gently pats, caresses, strokes, hugs, or kisses child during episode.		X
27. Caregiver smiles or touches child within five seconds after the child smiles or vocalizes.	X	
28. Caregiver praises child's efforts or behaviors broadly (in general) at least once during the episode.		X
29. Caregiver makes cheerleading type statements to the child during the teaching interaction.	X	
30. Caregiver avoids vocalizing to the child at the same time the child is vocalizing.		X
31. Caregiver avoids making general negative or uncomplimentary remarks about the child.	X	
32. Caregiver avoids yelling at the child during the episode.	X	
33. Caregiver avoids making critical or negative comments about the child's task performance.	X	
TOTAL YES ANSWERS	7	

IV. COGNITIVE GROWTH FOSTERING	YES	NO
34. Caregiver provides an immediate environment which is free from distractions from animate sources (siblings, pets, other people, T.V.).	X	
35. Caregiver focuses attention and child's attention on the task during most of the teaching (60%).	X	
36. After caregiver gives instructions, at least five seconds is allowed for the child to attempt the task before caregiver intervenes again.	X	
37. Caregiver allows non-task manipulation of the task materials after the original presentation.	X	
38. Caregiver describes a quality of the task materials to the child.		X
39. Caregiver uses at least two different sentences or phrases to describe the task to the child.	X	
40. Caregiver uses explanatory verbal style more than imperative style in teaching the child.	X	
41. Caregiver's directions are stated in clear, unambiguous language (e.g. ambiguous = "stack"; unambiguous = "stack the blocks").	X	
42. Caregiver uses both verbal description and modeling simultaneously in teaching any part of the task.	X	
43. Caregiver encourages and/or allows the child to perform the task at least once before intruding in the use of the task materials.	X	
44. Caregiver verbally praises child after child has performed better or more successfully than the last attempt.	X	
45. Caregiver smiles and/or nods at the child after child performs better or more successfully than the last attempt.	X	
46. Caregiver responds to the child's vocalizations with a verbal response.	X	
47. Caregiver uses both verbal and non-verbal instruction in teaching the child.	X	
48. Caregiver uses the teaching loop at least once.	X	
49. Caregiver signals completion of task to child verbally or nonverbally.		X
50. Caregiver spends no more than five minutes and not less than one minute in teaching the child the task.	X	
TOTAL YES ANSWERS	15	



T-2

V. CLARITY OF CUES	YES	NO
51. Child is in the quiet alert state when task is first presented.	X	
52. Child widens eyes and/or shows postural attention to task situation.	X	
53. Child changes intensity or amount of motor activity when task material is presented.	X	
54. Child's movements are clearly directed toward the task or task material or away from the task material (not diffuse).	X	
55. Child makes clearly recognizable arm movements during the teaching episode (clapping, reaching, waving, pounding, pointing, pushing away).	X	
56. Child vocalizes while looking at the task materials.		X
57. Child smiles or laughs during the episode.	X	
58. Child grimaces or frowns during the teaching episode.		X
59. Child displays potent disengagement cues during the teaching interaction.	X	
60. Child displays subtle disengagement cues during the teaching interaction.	X	
TOTAL YES ANSWERS	8	

VI. RESPONSIVENESS TO CAREGIVER	YES	NO
61. Child gazes at caregiver's face or task materials after the caregiver has shown verbal or non-verbal alerting behavior.	X	
62. Child attempts to engage caregiver in eye-to-eye contact.	X	
63. The child looks at the caregiver's face or eyes when caregiver attempts to establish eye-to-eye contact.	X	
64. Child vocalizes or babbles within five seconds after caregiver's verbalization.	X	
65. Child vocalizes or babbles within five seconds after caregiver's gesturing, touching, or changing his/her facial expression.	X	
66. Child smiles at caregiver within five seconds after caregiver's verbalization.	X	
67. Child smiles at caregiver within five seconds after caregiver's gesture, touch, or facial expression changes.	X	
68. When caregiver moves closer than eight inches from the child's face, the child shows some subtle and/or potent disengagement cues.		X
69. Child shows subtle and/or potent disengagement cues within five seconds after caregiver changes facial expression or body movement.	X	
70. Child shows subtle and/or potent disengagement cues within five seconds after caregiver's verbalization.	X	
71. Child shows potent and/or subtle disengagement cues when caregiver attempts to intrude physically in the child's use of the task materials.	X	
72. Child physically resists or responds aggressively when caregiver attempts to intrude physically in child's use of the task materials.		X
73. The child stops displaying potent disengagement cues within 15 seconds after caregiver's soothing attempts.		X
TOTAL YES ANSWERS	10	

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Seattle, WA 98195-7920
Phone 206-543-8528
www.ncast.org

Enter the total yes answers from each subscale and compare it with the possible score:

	SUBSCALE Items Possible	SUBSCALE Items Actual	CONTINGENCY Items Possible	CONTINGENCY Items Actual
SENSITIVITY TO CUES	11	11	5	5
RESPONSE TO DISTRESS	11	8	6	3
SOCIAL-EMOTIONAL GROWTH FOSTERING	11	7	3	1
COGNITIVE GROWTH FOSTERING	17	15	6	5
CAREGIVER TOTAL	**50**	**41**	**20**	**14**
CLARITY OF CUES	10	8	0	–
RESPONSIVENESS TO CAREGIVER	13	10	12	9
INFANT TOTAL	**23**	**18**	**12**	**9**
CAREGIVER/INFANT TOTAL	**73**	**59**	**32**	**23**

Check the Potent Disengagement Cues (PDCs) observed during the teaching interaction (excluding PDC's that terminate the teaching or occur after the caregiver has terminated the teaching).

Back arching	Pulling away
Coughing	Pushing away
Crawling away	Saying "no"
Cry face	✓ Spitting
Crying	✓ Spitting up
Fussing	✓ Tray pound
Halt hand	Vomiting
Lateral head shake	Walking Away
Maximal lateral gaze aversion	Whining
✓ Overhand beating movements	Withdraw from alert to sleep state

Place a checkmark next to the caregiver's racial identity.

American Indian or Alaska Native	✓ White
Native Hawaiian or Other Pacific Islander	Multiracial
Black or African American	Other (please specify)
Asian	

Hispanic, Latino, or other Spanish origin?
☐ No ☐ Yes (please specify)

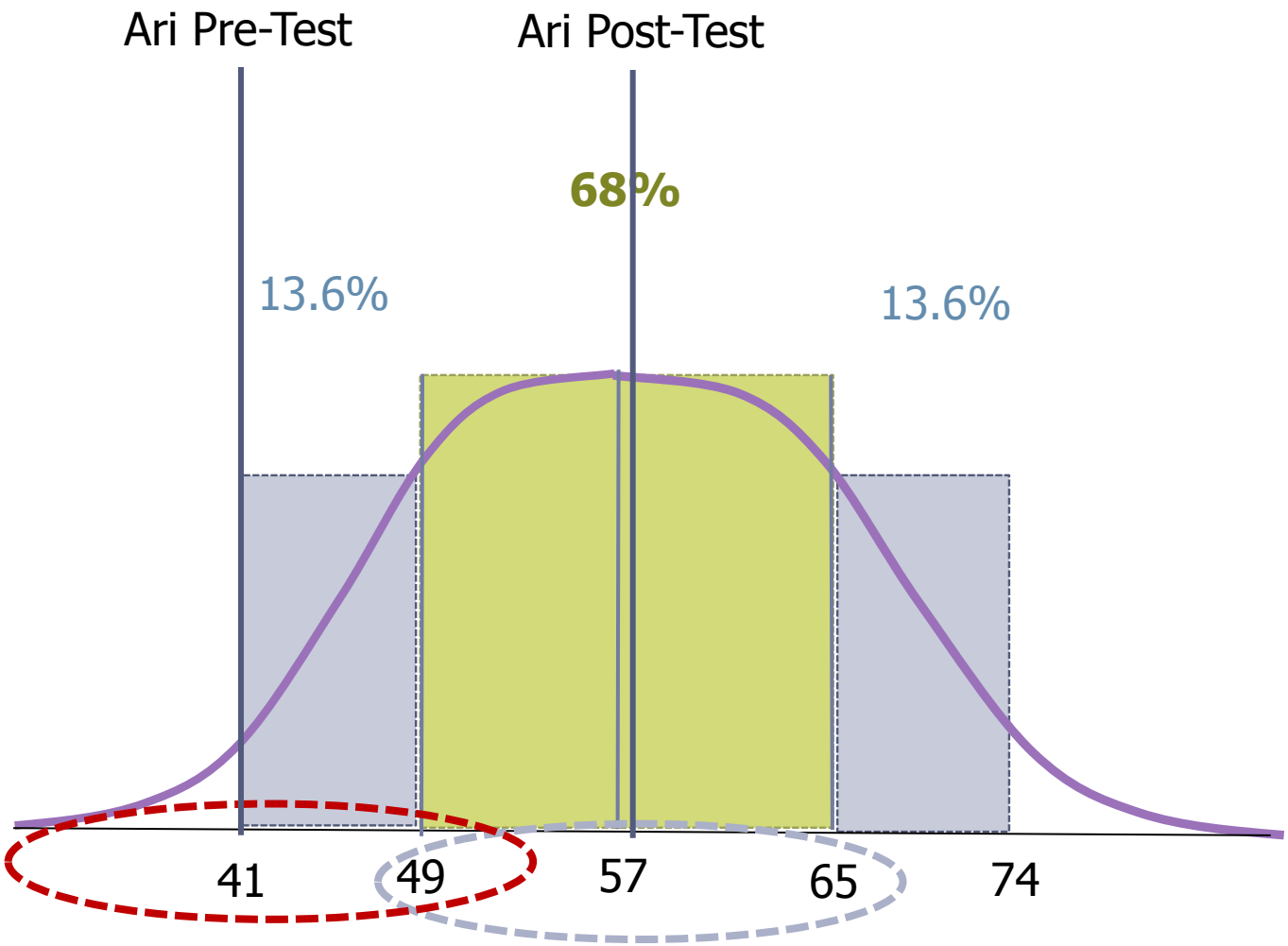
Specific group identity:

Clinical Notes:

Date of Observation

Recorder's Signature

1/13



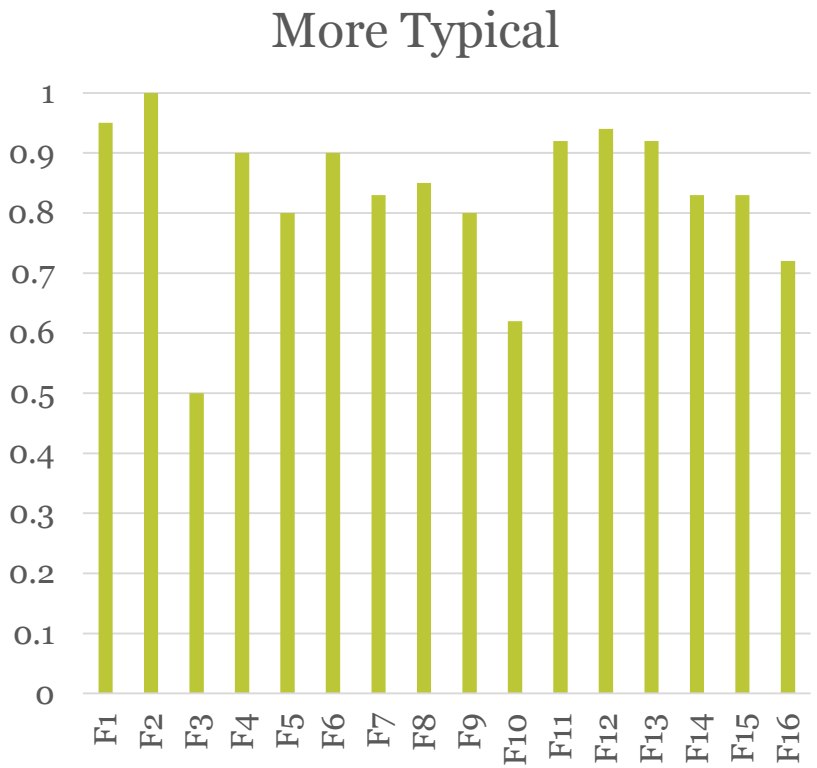
NCAST Data Base Teaching Total Distribution

Feeding Scale

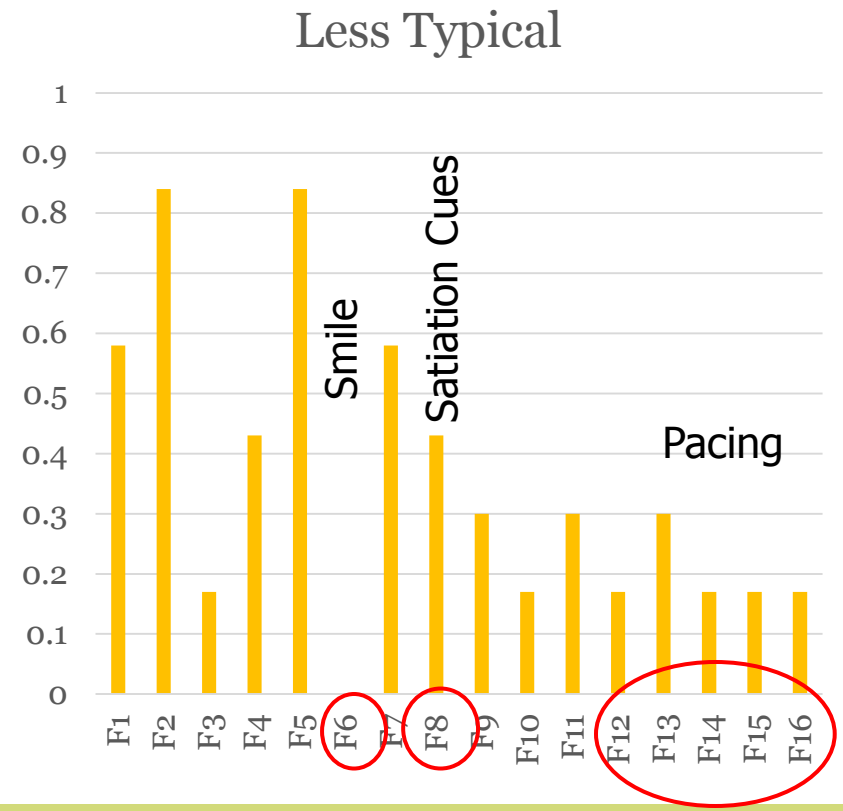
Feeding

Feeding Scale Sensitivity to Cues
Mothers ≥ 22 with children 4 to 12

More Typical Group Means



Less Typical Group Means



Assessment to Practice

Intervention Goals	Potential Activities
• Explore the pressure to feed • Explore cultural beliefs around feeding • Mom to gain an understand baby's non-verbal cues • Learn difference between hunger and satiation	• Baby Cue Cards & video • PIPE "*A Complete Feeding Cycle*" with a focus on "*Let the Child Set the Pace*" & Unit 3 "*Feeding Cues*" • Keys to Caregiving: Feeding Handout

Discussing and Introducing the Results

Working with Mom

Careful observation enhances intervention

- Ask how they felt about the activity and validate it—whatever it is (it is awkward…..uncomfortable….but)
- Show appreciation for taking the risk
- Then remind them of what went well, what strengths you noted
- Then comfortably introduce some activities….
- No need to say “you scored low” or “you need to work on” you can say…I thought today we would focus on this x, y, z….

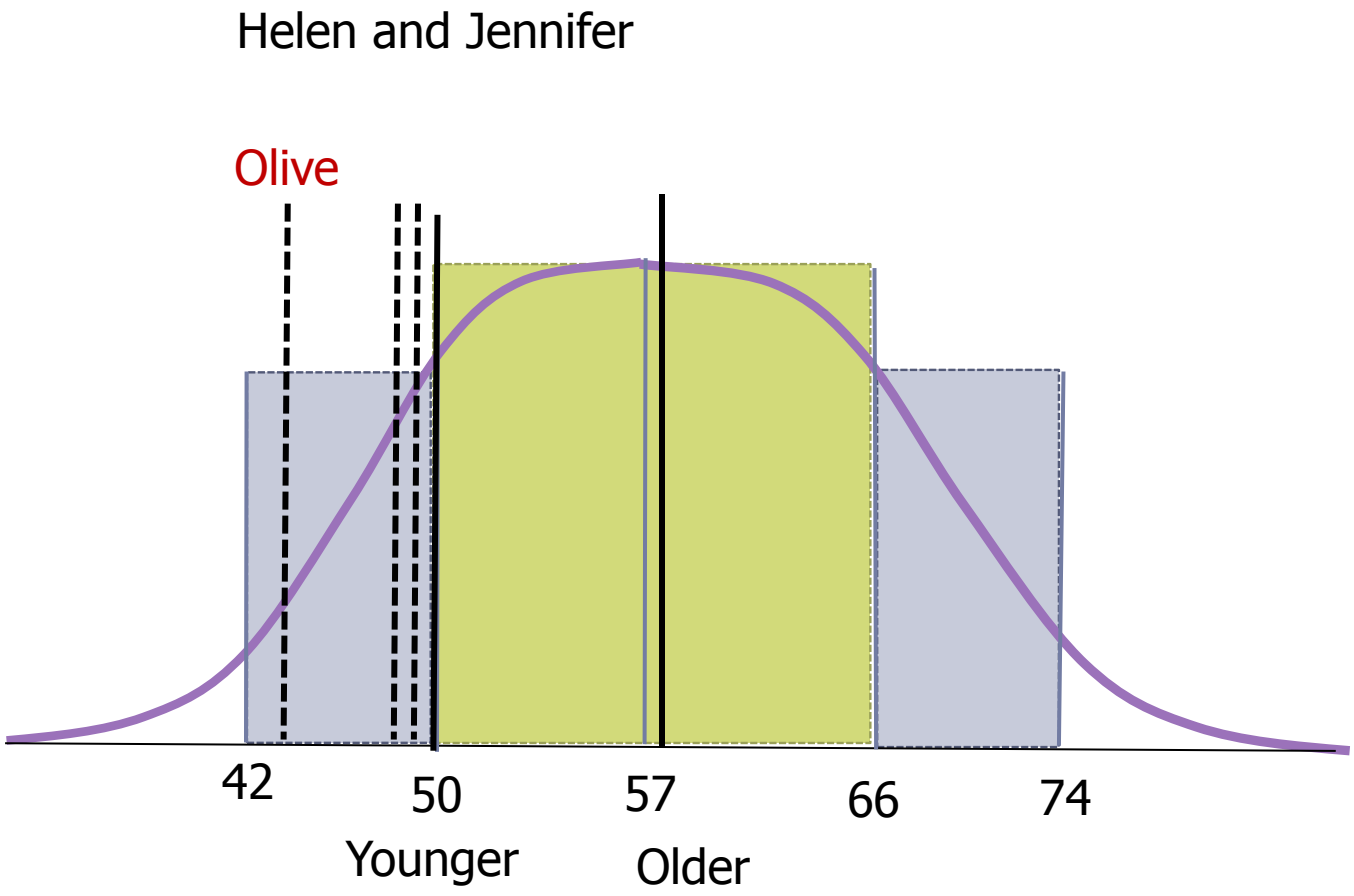
Exercise

- Adolescent mother named Olive, new to the area
- Review her teaching PCI
  - Consider where to focus intervention
  - Discuss how you might talk about her strengths
  - What activities would you use to address her challenges

Case load of 4 lowest scoring dyads

- Investigate the lowest scoring four caregivers
  - All 4 mothers score nearly one standard deviation below the mean
  - All would benefit from focused parent-child, serve-return intervention strategies
  - What each individual receives will be different

Client	Younger
Jennifer	48
Rebecca	52
Olive	44
Helen	49

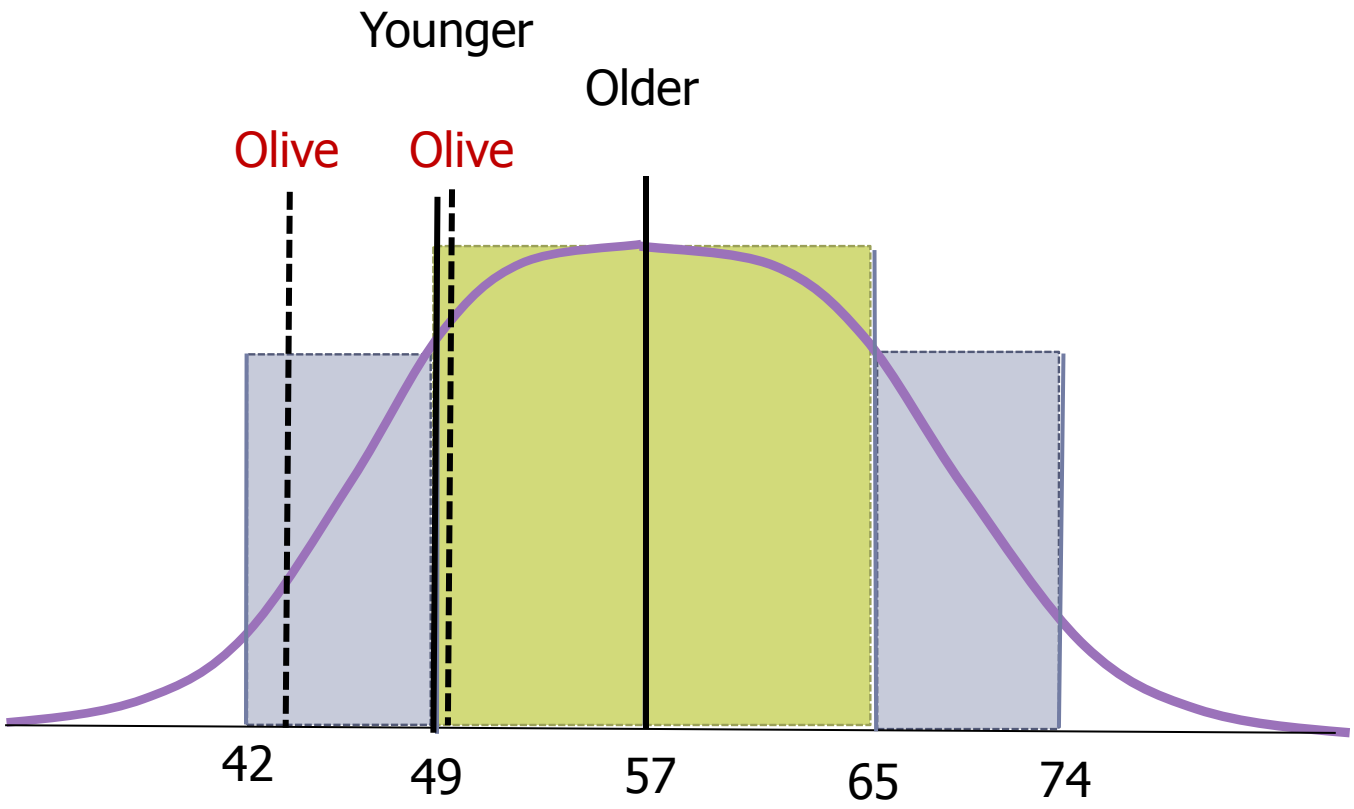


Specific Population Teaching Total Distribution

Design the Intervention for Olive and Baby

- Intervention Goals:

- Intervention Activities:



Specific Population Teaching Total Distribution

Program Level Use

MEANING MAKING

Potential Programmatic Uses

- Understanding where your community is on PCI
  - Compare means to other regions/units or samples in Canada
  - Understand what predicts low and high parenting capacity and child response to caregiver from HBHC screen.
- Understand different subgroups within your community by a known risk factor
  - Older moms compared to younger moms
  - Mothers with and without substance use issues
- Use PCI to assess needs and implement program changes
  - Increase home visiting services for at-risk parents
  - Fund a play group with the intent of increasing vocalizations among adolescent parents, measure pre-post PCI

HBHC Screen

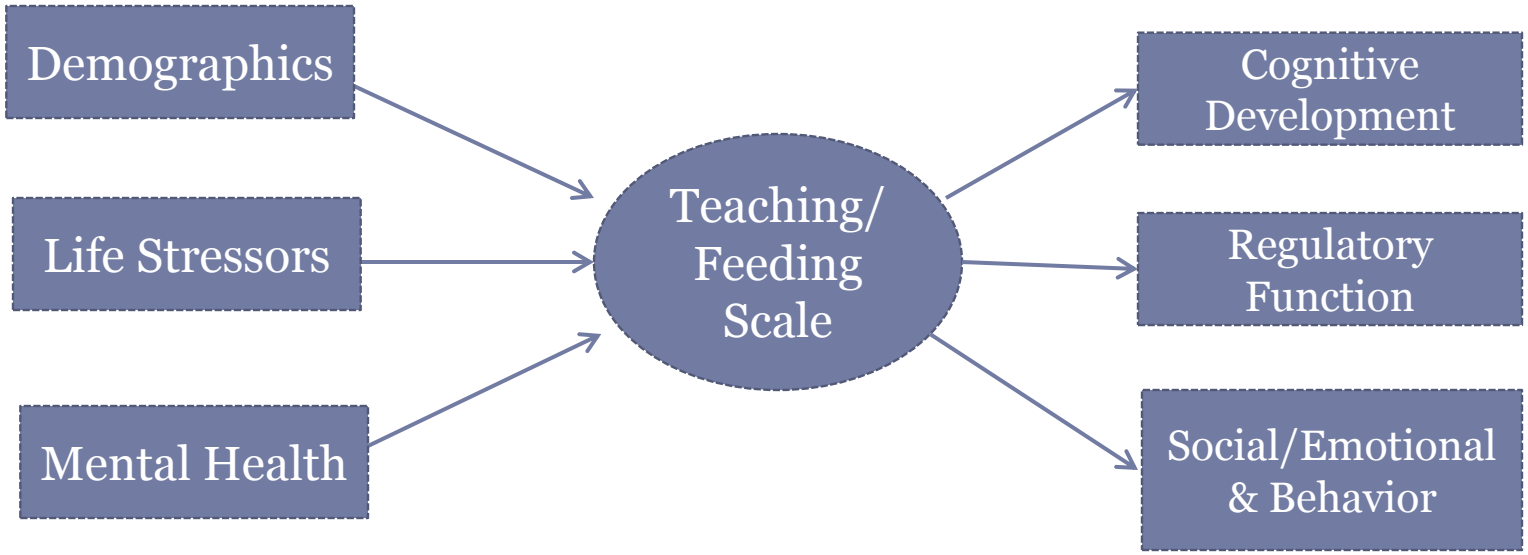
- Pregnancy and birth (Apgar, weight, maternal smoking….)
- Family's demo (age, ed, OHIP,….)
- Parenting stress (care for child, financial concern, history of anxiety/depression, support, disability, relationship strain, CPS, baby difficult to manage).
- Infant child development risk

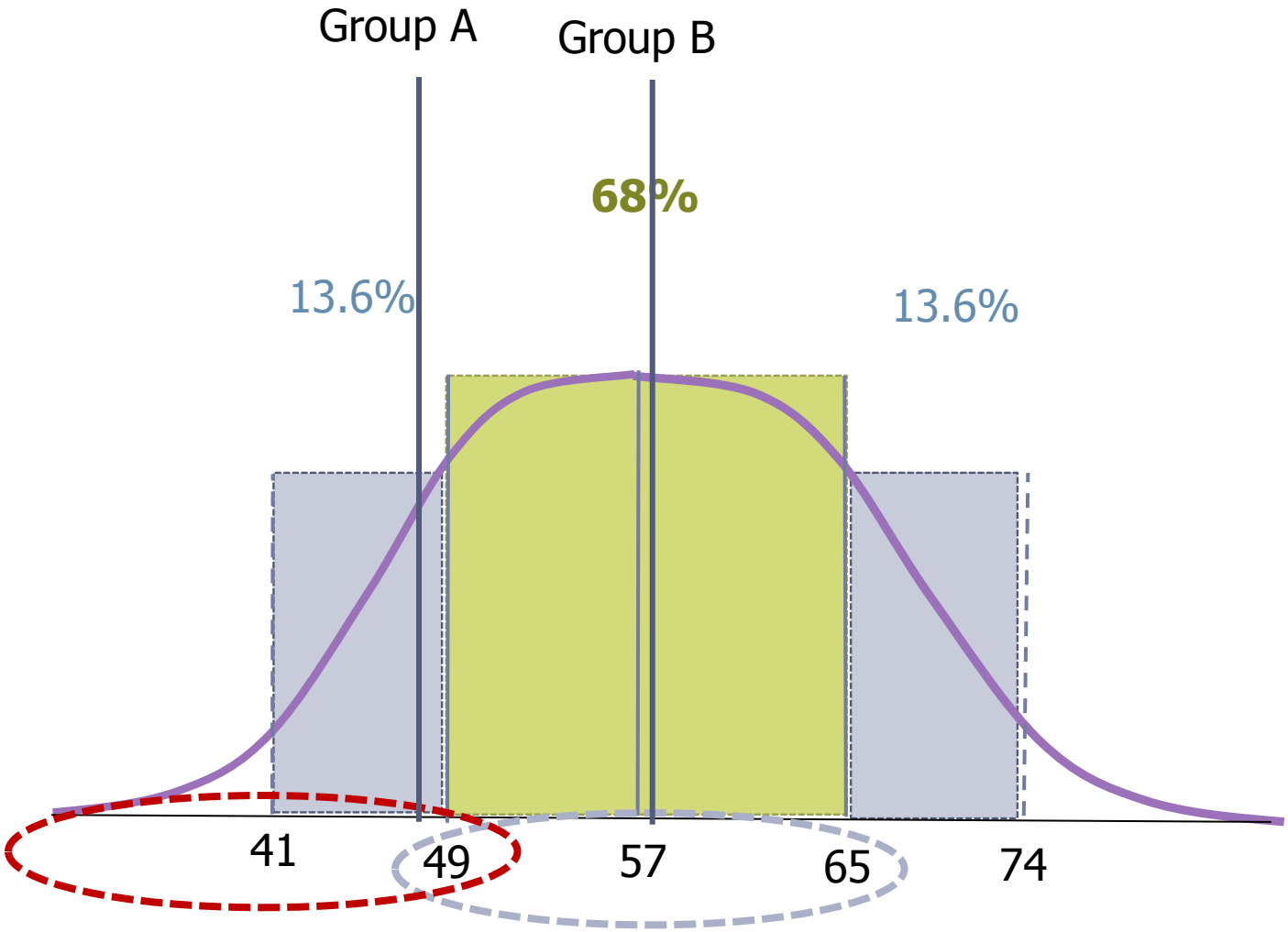
Understanding Subgroups and Communities

Subgroup/Community Differences on PCI

- Parents who are heavy substance users or are in treatment for substance use
- Parents with lower levels of education
- Adolescent parents
- Low birth weight or parents of children with medical needs
- Parents who are involved with child welfare
- Parents with mental illness- depression in specific
- Parents considered at risk because of multiple risk factors

What predicts parenting in Group A and Group B





NCAST Data Base Teaching Total Distribution

Setting up your data

- Enter subscale and total scale scores into excel
- Add variables of interest (group membership, risk status, age of baby)

Understanding Adolescent Parents: Teaching Total Score

- Identify your population of interest.

  Young Mothers

  - Big difference between younger and older mothers.
  - Teaching older moms= 58 and 52 for adolescent moms.

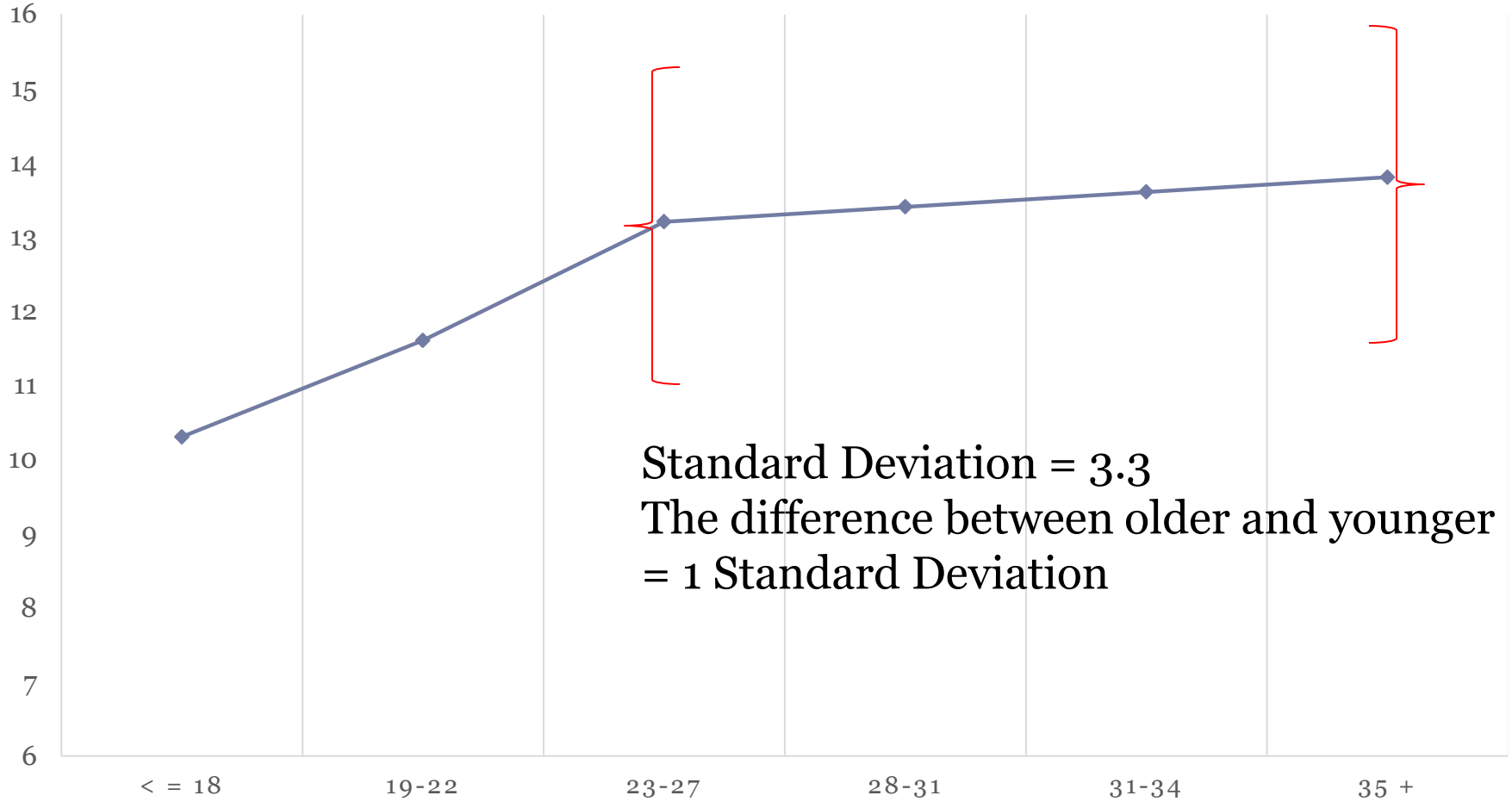
Client (n = 10)	Older	Younger
Jennifer		48
Doug	62	
Connie	60	
Alice	54	
Rebecca		52
Olive		44
Nancy		58
Kate	59	
Rae Jean	58	
Helen		49
Total	58	50

Take a Closer Look to Fine Tune

Subscale	Mean (SD) Older	Mean Younger
Sensitivity	10	8
Resp. to Distress	10 (2)	7 (2.5)
Social & Emotional	10	9
Cognitive	15 (3)	11 (3.5)
Child Cues	8	8
Child Response	8	7
Total	61	50

- We notice that the cognitive scale has the greatest discrepancy for the group
  - Dig deeper and look at individual cases
  - Implement program wide focus on increasing cognitive growth fostering activities for all young mothers
  - Use to get funding for programs for certain populations

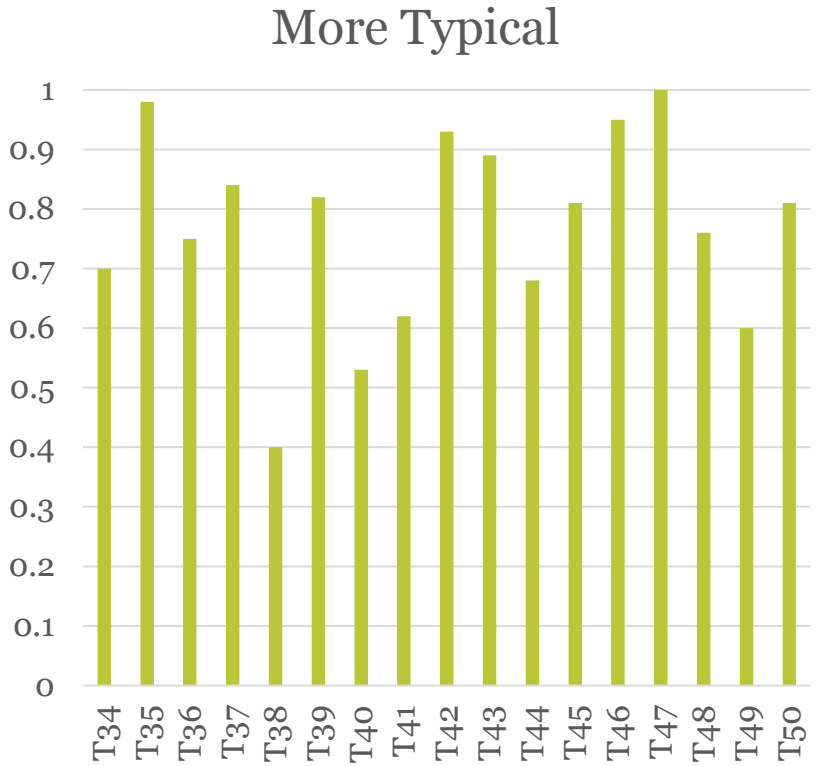
Cognitive Growth Fostering by Mother Age

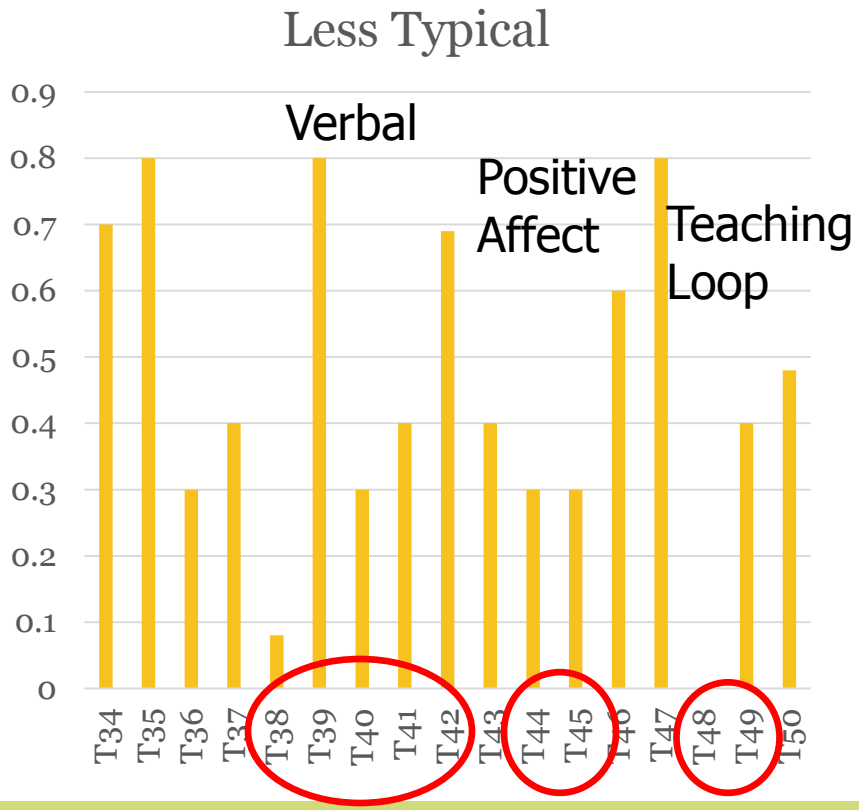


Teaching Scale Cognitive Growth Fostering Mothers ≤ 22 with children 4 to 14

More Typical Group Means

Less Typical Group Means





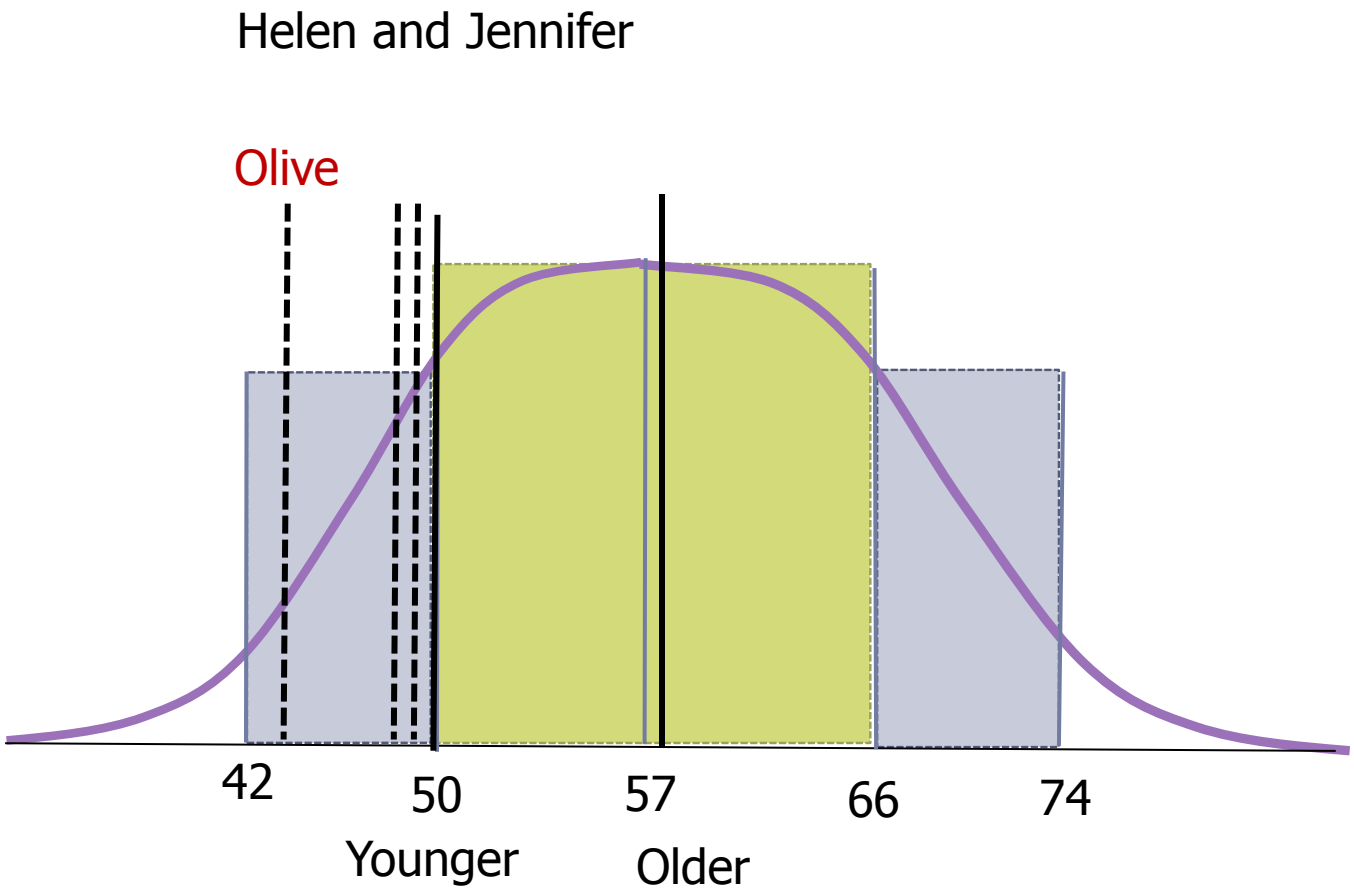
Intervention Planning

Intervention Goals	Activities Planned
• Increase awareness about the importance of talking to your baby • Responding to baby's non verbal cues • Explore comfort with talking to baby	• PIPE Listen: *Learning Language* or *Reading to Baby* • Use any Teaching Loop Diagram • https://www.youtube.com/watch?v=WdLKpxktJB4 • https://www.youtube.com/watch?v=ZJBnUNp4_og

Identify Individuals at Risk

- Investigate the lowest scoring four caregivers
  - All 4 mothers score nearly one standard deviation below the mean
  - All would benefit from focused parent-child, serve-return intervention strategies
  - What each individual receives will be different

Client	Younger
Jennifer	48
Rebecca	52
Olive	44
Helen	49

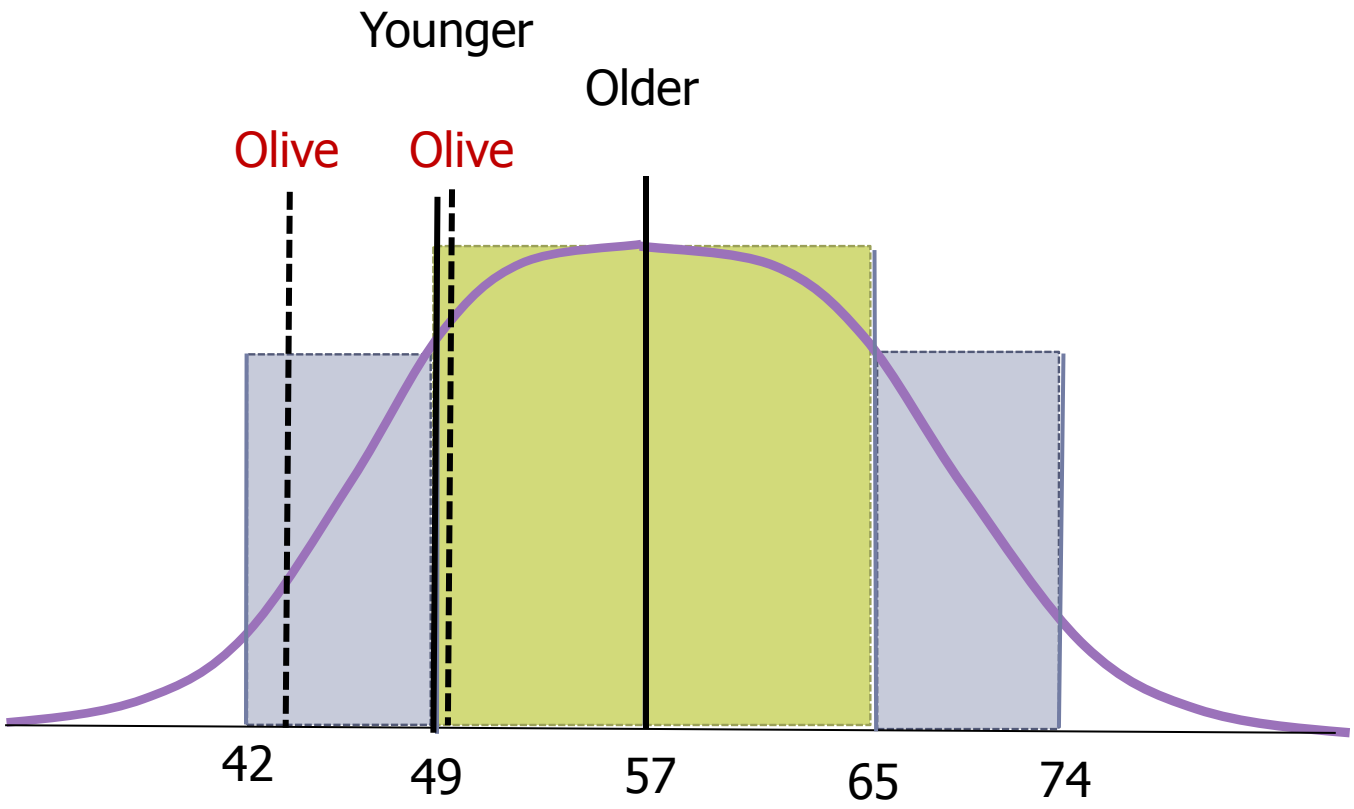


Specific Population Teaching Total Distribution

Design the Intervention for Olive and Baby

- Intervention Goals:

- Intervention Activities:



Specific Population Teaching Total Distribution

Programmatic Outcomes

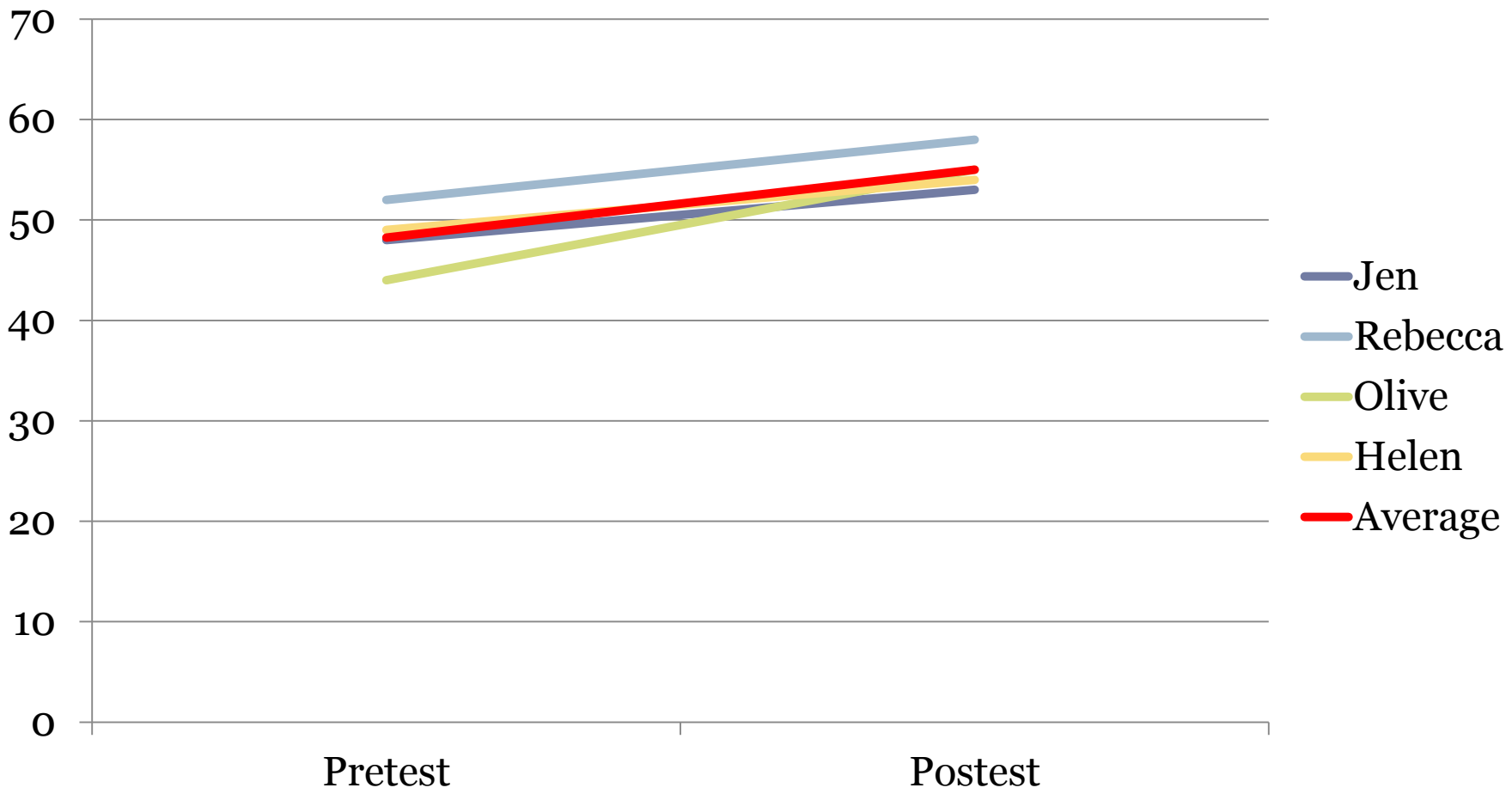
COMPARE PRE-TEST TO POST-TEST TO MEASURE THE EFFECT OF SERVICE PROGRAM OUTCOMES

Programmatic Outcomes:

- All families coming into service during a specific time frame.
- All families with a specific risk factor
- All families with children in different age ranges (0-3mo; 3-6mo; 6-12mo)
- Program outcomes 2 months, 3 months, 6 months.

Client	Pre-Test	Post-Test
Jennifer	48	53
Rebecca	52	58
Olive	44	55
Helen	49	54
Means	48.25	55

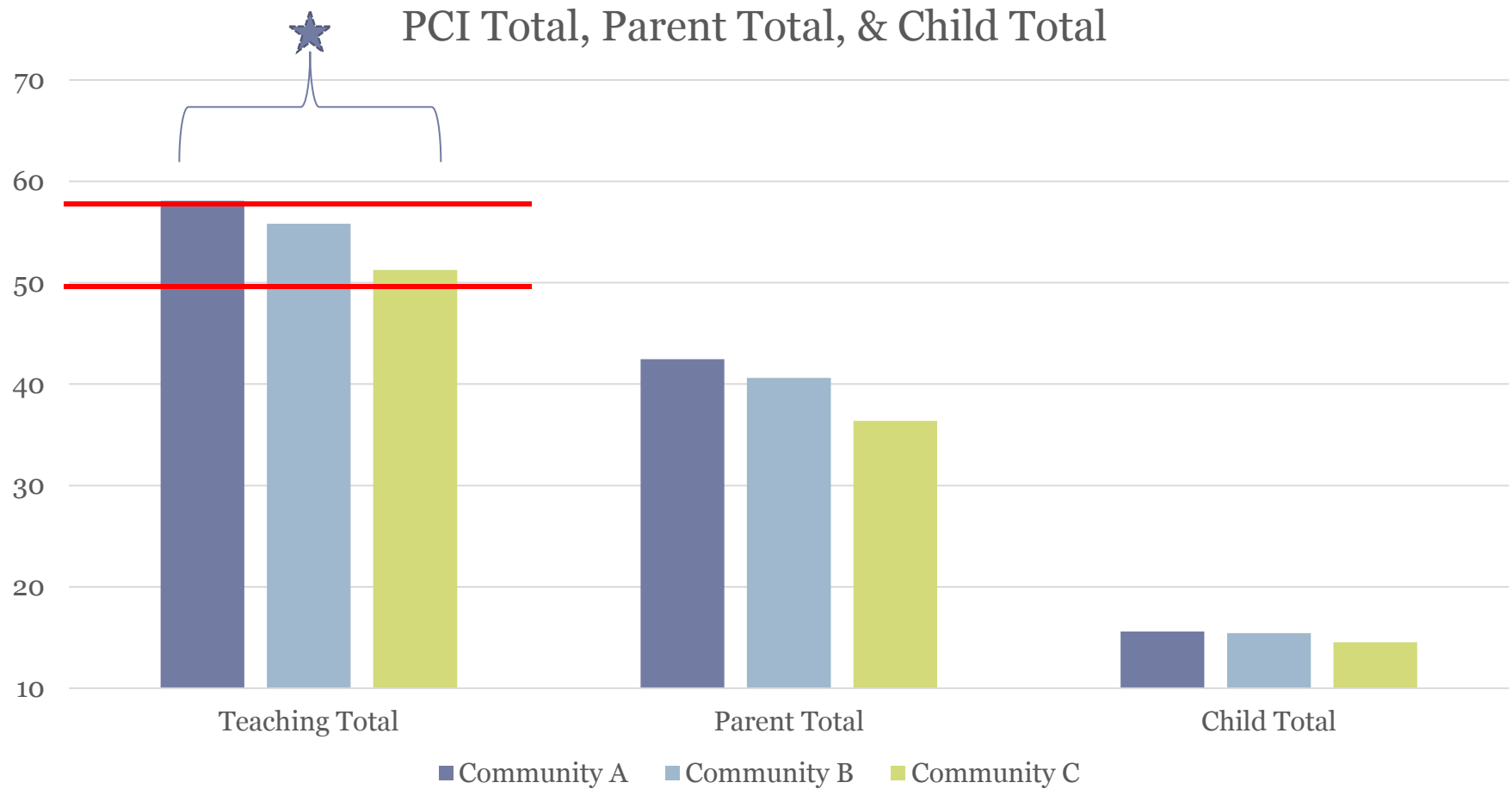
Young Moms Over Time



Needs Assessment at Community Level

IDENTIFY PROGRAM NEEDS IN DIFFERENT COMMUNITIES/GROUPS/POPULATIONS

Understanding Specific Communities/Regions



Program Choices

- Increase access our outreach for home visiting for community C then take a post-test and see if the overall average has improved.

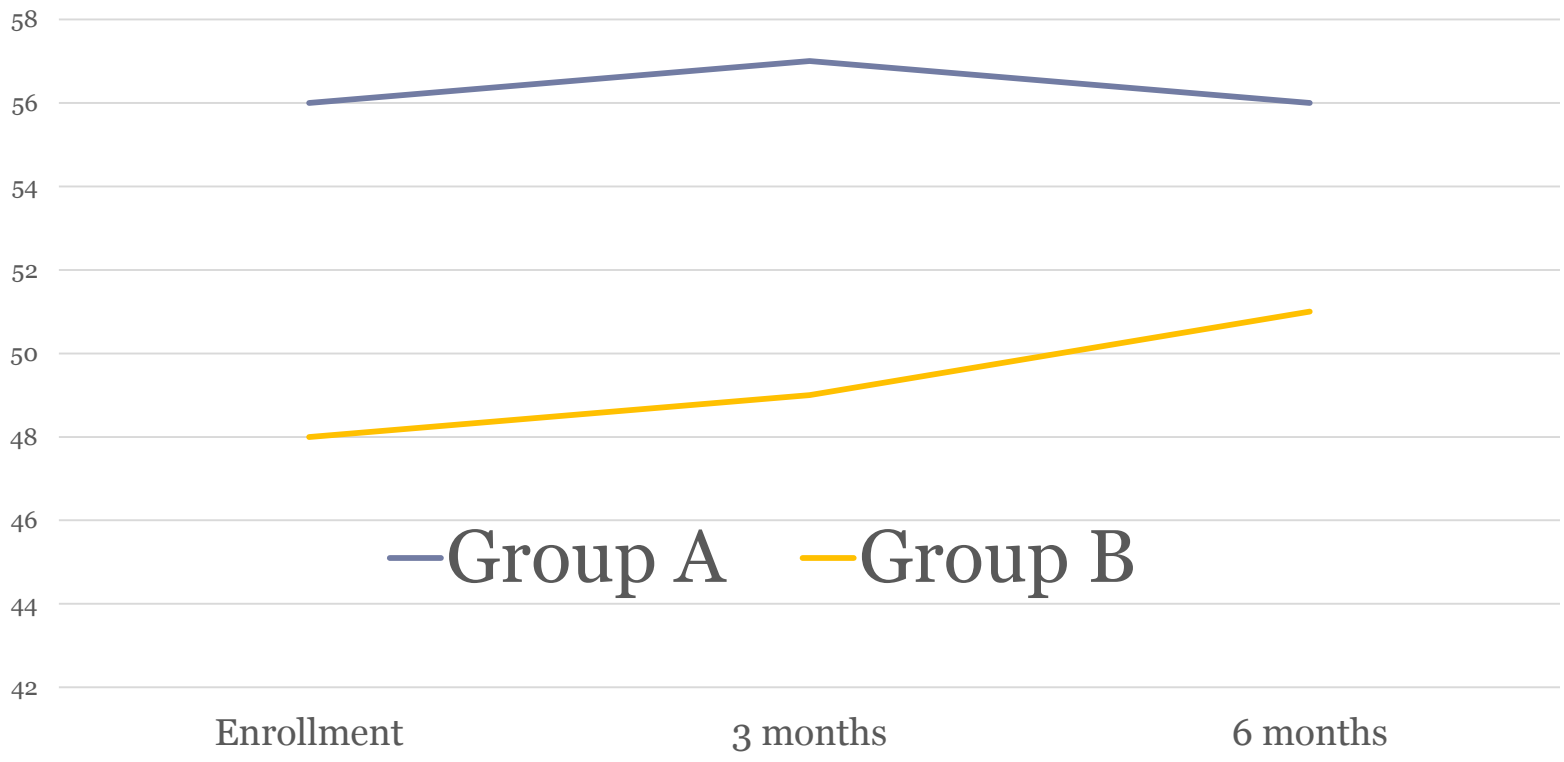
- Provide play support groups in community 3 with aims on improving parental sensitivity during play.

- Dig a little deeper and see if there is a sub group of particular concern (perhaps Community C has more _____ parents).

Comparing Groups within Communities

	Community A N= 50 Mean (SD)	Community B N = 38 Mean (SD)
Sensitivity to Cues	9 (1.5)	7.5
Response to Distress	10 (1)	8
Social Emotional Growth Fostering	9 (1.5)	8
Cognitive Growth Fostering	13 (3)	10
Child Cues	8 (1.5)	8
Child Responsiveness	7.5 (3)	6.5
Total Parent	41 (7)	33.5
Total Child	15.5 (4)	14.5
Total Mother Serve and Return	17 (3)	14
Total Child Serve and Return	3 (1.5)	3
Grand Total	56.5 (8)	48

PCI as a Measure for Program Evaluation



Thank You

- Questions or Comments