Improving Maternal Responsivity to Children with FXS: Results from a Pilot Study

Nancy C. Brady, Audra Sterling and Steven F. Warren

University of Kansas, Life Span Institute

Introduction

The amount and types of interactions between mothers and young children have been found to affect child development across a number of domains, including communication and language. Exposure to highly responsive parenting style, characterized by frequent contingent responses to child communication attempts, following the child's lead in interactions and providing linguistic input, correspond with better child outcomes for children with a variety of developmental disabilities (Warren & Brady, 2007). Interventions aimed at improving responsivity have shown positive effects for mothers of children with Down syndrome and other developmental disabilities.

Research Questions

1. Does an intervention package designed to enhance maternal responsivity show positive outcomes for a small sample of low responsive mothers of children with Fragile X syndrome (FXS)?
2. Secondarily, do child communication behaviors increase during the intervention period?

Participants

4 mother-child dyads

Child	CA	Exp lang Age[1]	Rec lang Age[1]	CARS[2]	Maternal age	Maternal PSI score (total stress)[3]
Matt	8;0	24	27	25.5	39	102
Josh	6;10	19	27	33.5	?	88
Brandon	5;10	12	23	32.0	40	129
Seth	4;8	21	28	24.5	39	118

[1] Obtained from the Mullen Scales of Early Learning; [2] the Childhood Autism Rating Scale; [3] Parenting Stress Index- scores above 91 indicate significant stress.

* Child 1's mother also had full mutation of the Fragile X gene.

Intervention Package

An adapted version of the Hanen Early Language Program (Girolametto & Wieitzman, 2006) was implemented with each family by a local speech language pathologist who was certified to provide this intervention.

- Ten sessions were held approximately 1 week apart.
- Each session followed the Hanen curriculum but lessons were individualized. Key components of the intervention included
  - teaching parents to wait for their children to initiate interactions
  - recognizing communication attempts
  - following the child's lead
  - providing simplified input

Acknowledgements

This research was supported with the following grants:
NICHD: 3 P30 HD003110-3; P30 HD002528-39; NIDCD:P30 DC005803

For more information please contact:
Nancy Brady • University of Kansas • 1000 Sunnyside Drive
Lawrence KS 66049 • nbrady@ku.edu

To download a copy of this poster go to:
www2.ku.edu/~lsi/research/profiles/brady_nancy.shtml

Design

A multiple baseline across participants design was used to evaluate the effects of intervention.

- Data were obtained from videotaped mother-child interactions collected during baseline, intervention and at a follow-up session

Dependent Variables

Maternal Behaviors - Maternal behaviors toward their children were coded using Noldus Observer software. Subsequent principal component analyses yielded two components: *facilitative interaction* and *behavior management styles:*

- Facilitative interaction style comprised of comments, use of gestures, recodes of child communication and requests for verbal complies
- Behavior management style comprised of redirects, zaps (verbal reprimands) and requests for behavioral complies
  - Facilitative interaction has been associated with advanced child communication; whereas behavior management style was not significantly correlated with child outcomes (Sterling, Brady & Warren, 2006)
- Number of utterances per turn of interaction

Child Behaviors

- Number of different words said or signed or communicated with symbols during the observation
- Mean length of utterance
- Number of utterances per turn of interaction

Coding Reliability

- Two research assistants independently coded each videotaped interaction
- Reliability between independent coders was quite good as indicated by the intraclass correlation coefficients (ICCs). The ICCs ranged between .807 and .962 across the dependent variables.

Discussion

Results from this pilot study showed that an intervention aimed at increasing maternal responsivity is feasible and likely to show benefits for some mothers and their children with FXS. The mother who showed the least amount of change over time, Matt's mom,was the mother who also had the full mutation of the fragile X gene. Future intervention studies may have better or more consistent results if younger children participate because much of the curriculum is focused on children younger than 4 years of age. In addition, the inclusion of a concurrent intervention targeting child behaviors would likely benefit both child and maternal interaction behaviors.

References

Warren, S.F. & Brady, N. (2007). The role of maternal responsivity in the development of children with intellectual disabilities. *Mental Retardation and Developmental Disabilities Research Reviews*, 13, 330-338.

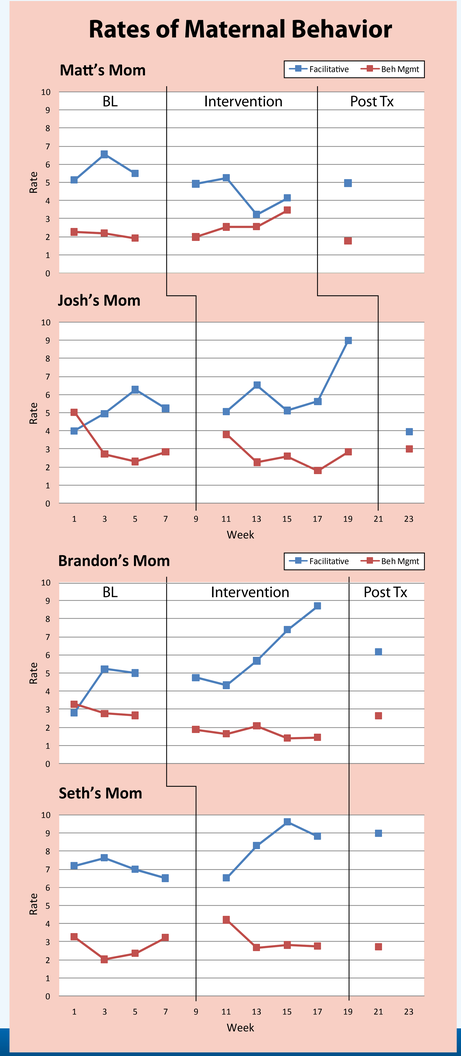
Girolametto, L., & Wieitzman, E. (2006). It takes two to talk-the hanen program for parents: Early language intervention through caregiver training. In R. McCauley & M. Fey (Eds.), *Treatment of language disorders in children* (pp. 77-104). Baltimore, MD: Brookes Publishing Co.

Sterling, A., Brady, N., Warren, S., Fleming, K., and Marquis, J. (2006, March). *What factors influence maternal responsivity in mothers of young children with fragile X syndrome (FXS)?* Research display presented to the Gatlinburg Conference on Research and Theory in Mental Retardation and Developmental Disabilities, San Diego, CA.

Results

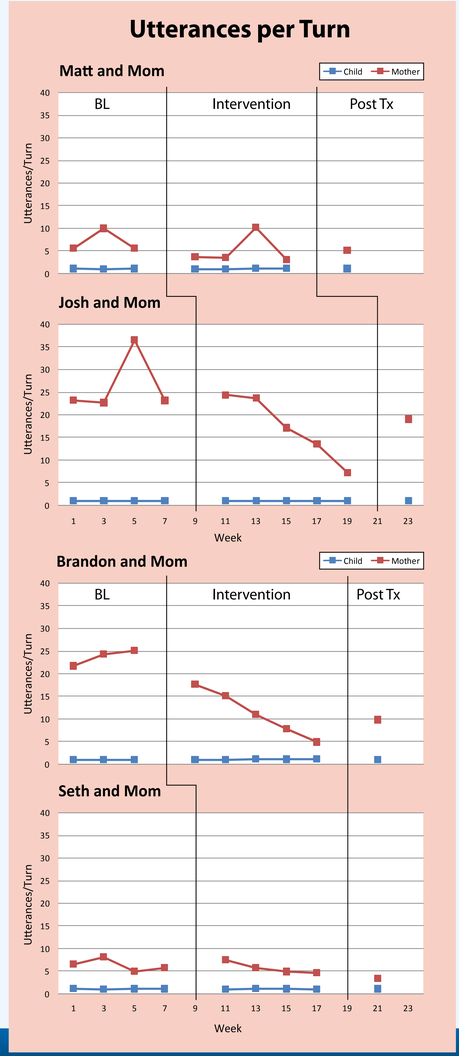
Maternal Responsivity Outcomes

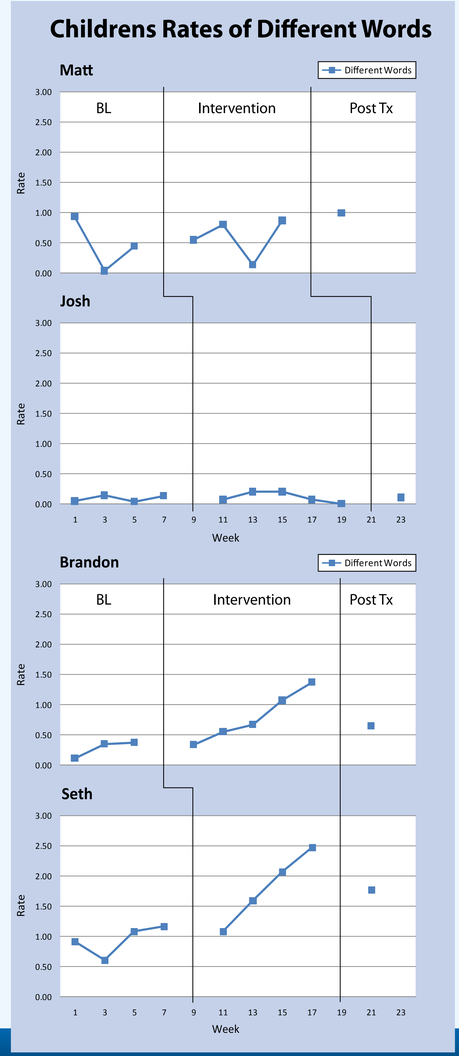
- Three mothers showed increases in facilitative interaction style behaviors



Maternal Responsivity Outcomes

- Three mothers decreased their number of utterances per turn



Child Communication Outcomes

- Two children increased the number of different words produced