



AOTA Evidence Briefs

Developmental Delay in Young Children

**A product of the American Occupational Therapy Association's Evidence-Based Literature Review Project*

DD #1

Home intervention during first year of life may benefit children who fail to thrive

Black, M. M., Dubowitz, H., Hutcheson, J., Berenson-Howard, J., & Starr, R. H., Jr. (1995). A randomized clinical trial of home intervention for children with failure to thrive. *Pediatrics*, *95*, 807–814.

Level: IA1a

Randomized controlled trial, 20 or more participants per condition, high internal validity, high external validity

Why research this topic?

Babies who are carried the full 9 months, and whose birthweight is normal for that length of time in the womb, sometimes fail to thrive. In low-income families, nutritional deprivation may be the cause. Family-focused home intervention might be a desirable strategy to promote healthy growth and development. Black and her colleagues (1995), variously affiliated with the University of Maryland School of Medicine (Baltimore) and the University of Maryland Baltimore County, hypothesized that home intervention with the families of such babies would contribute to improved growth and development, better parent–child interaction during feeding, and a higher-quality home environment.

What did the researchers do?

The researchers recruited 130 children (gender not reported) from urban pediatric clinics serving low-income families. Ninety percent were Black, and most were from single-parent households with few economic resources. All were younger than 25 months (12.7 months, on average), had an appropriate weight for their age, had a **gestational age** (see *Glossary*) of at least 36 weeks, and had a birthweight appropriate for their gestational age. Further, none had a history of complications at birth, or any congenital disorders, chronic illnesses, or developmental disabilities that could interfere with growth and development.

The researchers randomly assigned the children to a treatment or a **control group** (see *Glossary*) following a special procedure to match the groups in age, gender, and race. Both groups received nutrition services in the University of Maryland's growth and nutrition clinic. The treatment group also received weekly 1-hour home visits for 1 year. Lay home visitors provided the intervention under the supervision of a community health nurse. The model on which the intervention was based involved forming a therapeutic alliance between the visitor and the mother; support of the mother's personal, family, and environmental needs; opportunities to model and promote healthy parent–child interaction and development; and problem-solving strategies regarding personal, parenting, and children's issues.

The outcome areas of interest were *growth* (as measured by age- and gender-specific charts from the National Center for Health Statistics); *cognitive* and *motor development* (both as measured by the Bayley Scales of Infant Development or the Battelle Developmental Inventory, depending on the child's age); *language development* (as measured by the Receptive/Expressive Emergent Language Scale); *parent–child behavior during feeding* (as measured by a modified version of the Parent Child Early Relational Assessment); and *home environment* (as measured by the Home Observation for Measurement of the Environment [HOME] Scales). The assessments were made before and after the intervention.

What did the researchers find?

Both groups showed **significant** (see *Glossary*) growth during the 1-year intervention. The changes were not related to the child's status (treatment or control) or the child's age at recruitment.

Both groups also showed a significant decline in cognitive development during the intervention. The younger children (1–12 months old at recruitment) in the treatment group experienced less decline than their counterparts in the control group.

There was no change in motor development associated with the intervention.

There was a significant decline in language status for both groups. Children in the treatment group showed less decline, regardless of age.

Significant improvements occurred in children's ability to interact during feeding, and parents became significantly more controlling during feeding. However, the changes were not associated with the intervention.

At the end of the intervention, children in the treatment group were living in significantly more child-centered homes than children in the control group.

What do the findings mean?

- The findings support cautious optimism about home intervention for low-income children with nonorganic failure to thrive (NOFTT), provided by a trained lay visitor. The effect of home intervention on the home environment is encouraging. However, more frequent and longer-term involvement may be needed to implement the changes necessary to promote and maintain healthy development over time.
- The findings should boost confidence in funding home intervention programs. The researchers report that the costs of this particular program were consistent with those of other home-visiting programs reported in the literature.

What are the study's limitations?

- Recruitment of sample, how sample was determined, and how clinics were identified to participate is not clear.
- HOME as an outcome measure has had its validity questioned with low-income families because it may have a cultural bias toward low-income homes.
- HOME was used to measure outcomes 18 months after the intervention took place. This raises validity issues.
- There was a tremendous range in number of interventions received (0–47).
- Parent satisfaction with the program was not measured.
- At the 1-year follow-up, researchers switched from the Bayley Scales of Infant Development to the Battelle Developmental Inventory.
- Generalization is limited to a Black sample with low-income, low-education (63% of women did not finish high school) households headed by single women.
- The sample targeted only children with NOFTT.
- Year(s) of data collection were not specified.

Glossary

control group—a group that received special attention similar to that which the treatment group received, but did not receive the treatment.

gestational age—age from conception, rather than from birth.

significance (or significant)—a statistical term; this refers to the probability that the results obtained in the study are not due to chance, but to some other factor (such as the treatment of interest). A significant result is one that is likely to be generalizable to populations outside the study.

Significance should not be confused with clinical effect. A study can be statistically significant without having a very large clinical effect on the sample. For example, a study that examines the effect of a treatment on a client's ability to

walk may report that the participants in the treatment group were able to walk significantly longer distances than the control. However, if you read the study you may find that the treatment group was able to walk, on average, 6 feet, whereas the control group was able to walk, on average, 5 feet. Although the outcome may be statistically significant, a clinician may not feel that a 1-foot increase will make his or her client functional.

■ Terminology used in this document is based on two systems of classification current at the time the evidence-based literature reviews were completed: *Uniform Terminology for Occupational Therapy Practice—Third Edition* (AOTA, 1994) and *International Classification of Functioning, Disability and Health (ICIDH-2)* (World Health Organization [WHO], 1999). More recently, the *Uniform Terminology* document was replaced by *Occupational Therapy Practice Framework: Domain and Process* (AOTA, 2002), and modifications to *ICIDH-2* were finalized in the *International Classification of Functioning, Disability and Health* (WHO, 2001).

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