Home visits by paraprofessionals improved maternal mental health and mother-child interaction 2 years after visits ended

Olds DL, Robinson J, Pettitt L, *et al.* Effects of home visits by paraprofessionals and by nurses: age 4 follow-up results of a randomized trial. *Pediatrics* 2004;114:1560–8.

Q Two years after completion of a home visiting intervention, do the improvements in maternal and child health expected from paraprofessional (lay visitors/peer support or community workers) home visits emerge? Do the benefits attributed to home visits from professional nurses endure?

METHODS

Design: randomised controlled trial.

Allocation: concealed.

Blinding: blinded (data collectors).

Follow up period: 2 years of intervention followed up by a 2 year observational period.

Setting: Denver, Colorado, USA.

Participants: 735 pregnant women (mean age 20 y) who had no previous live births and either qualified for Medicaid or had no health insurance.

Intervention: Prenatal and postpartum paraprofessional home visits (PHV) (n=245), nurse home visits (NHV) (n=235), or a control condition (n=255) until the child was 2 years of age. All participants received developmental screening and referral services for their children. The objectives of the home visitation programmes delivered by paraprofessionals and nurses included helping women to improve health related behaviours during pregnancy and helping parents to provide more competent care giving, plan future pregnancies, continue their education, and find work.

Outcomes: maternal outcomes included subsequent pregnancy outcomes, employment, incidence of physical abuse, use of child care, mother-child interaction, and mothers' sense of "mastery" or control. Child outcomes included measures of emotional and language development. Home environments were assessed for their support of early learning.

Participant follow up: 86% for maternal interviews and 83% for child assessments.

MAIN RESULTS

Paraprofessional effects. When children were 2–4 years of age, mothers in the PHV group worked more (15.1 v 13.4 mo, $p = 0.04$), had a greater sense of mastery (scores 102.3 v 99.3, $p = 0.03$), and better mental health (scores 101.2 v 99.2, $p = 0.03$) than mothers in the control group. When a subsequent birth did occur, fewer mothers in the PHV group than in the control group had a low birth weight infant (2.8% v 7.7%, $p = 0.03$). Also, mother-child pairs in the PHV group displayed more sensitive and responsive interactions than in the control group (scores 100.9 v 98.7, $p = 0.03$).

Professional nurse effects. Women in the NHV group had greater intervals between the births of their first and second children, reported less violence from partners, and enrolled their children less frequently in preschool, "head start," or licensed day care than

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women in the control group (p values < 0.05). Children in the NHV group had better language development, superior executive functioning, and better behavioural adaptation during testing than those in the control group (p values < 0.05).

CONCLUSIONS

Two years after home visits ended (child age 2 y), paraprofessional home visits were associated with improved maternal mental health, sense of mastery, and mother-child interaction. In the nurse visited group, enduring benefits included improvements in spacing of births and child development.

Commentary

The question addressed by Olds *et al* about emerging and enduring differences over time between mothers and children in PHV and NHV intervention groups is an important one as changes could influence maternal and child development trajectories and therefore future health and social policies. Mothers in the PHV group showed improvements in maternal outcomes after 2 years compared with the control group, but child outcomes did not change. This finding is an improvement from the non-significant differences found immediately after the programme.¹ Although their home environments were more supportive of early learning, this was not sufficient to change child outcomes. The changes in maternal outcomes may be related to the increased number of mothers who were living without a partner and for whom obtaining employment was more urgent.

The NHV group continued to show reduced rates of domestic violence and longer intervals between births than the control group. Other evidence suggests that these 2 outcomes could improve parenting.² Children of low resource mothers in the NHV group also showed improved executive functioning, behavioural adaptation, and emotional regulation. Unfortunately neither PHVs nor NHVs had any effect on maternal alcohol or drug use. The study showed that compared with the control group, nurses had more influence on child outcomes than paraprofessionals (heuristic argument rather than a finding of a direct comparison between PHV and NHV groups). Because visits by different practitioners lead to different maternal and child outcomes, programme objectives should be considered when selecting a provider. Furthermore, an economic analysis is needed to determine the most cost effective and efficient provider for home visiting services to low resource mothers and their first infants.

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1 Olds DL, Robinson J, O'Brien R, *et al.* Home visiting by paraprofessionals and by nurses: a randomised, controlled trial. *Pediatrics* 2002;110:486–96.

2 McFarlane JM, Groff JY, O'Brien JA, *et al.* Behaviours of children who are exposed and not exposed to intimate partner violence: an analysis of 330 black, white, and Hispanic children. *Pediatrics* 2003;112:e202–7.