The effectiveness of home visiting as a delivery strategy for public health nursing interventions to clients in prenatal and postnatal period: a systematic review

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Authors' objectives
To assess the evidence of effectiveness for home-visiting as a programme delivery strategy for pre- and post-natal clients.

Searching
The present review is an update of earlier work. (see Other Publications of Related Interest nos.1-2). The combined strategy for the original and the updated search is described. MEDLINE and CINAHL were searched from 1979 to 1998 using the keywords 'PHN' or 'CHN' and 'effectiveness' or 'control' or 'comparative' or 'evaluative' study. The keyword 'home visiting' was also used in a focused search from 1985. Experts in the field were contacted. Key public health journals (1980 to 1998) and relevant documents, reference lists and conference reports were handsearched. The contents lists of other related journals were scanned from 1992 to 1998.

Study selection
Study designs of evaluations included in the review
Prospective study designs with a control or comparison group, including before-and-after studies, were eligible for inclusion. After the validity assessment, studies that were deemed to be of a weak quality were excluded.

Specific interventions included in the review
Any intervention carried out by a nurse, which was within the scope of public health nursing (PHN) practice in Canada, was eligible.

Participants included in the review
Studies where the participants were pre- or post-natal women were eligible for inclusion.

Outcomes assessed in the review
Any evaluation of a client-focused outcome, or the costs of eligible interventions or programmes, was included.

How were decisions on the relevance of primary studies made?
All the retrieved articles were read and rated independently for validity by two reviewers.

Assessment of study quality
A quality assessment tool was developed which included the following criteria: method of allocation; level of agreement to participate; control for confounders; method of data collection, including blinding of data collectors; quantitative measure of effect; and participant follow-up rate. The studies were categorised as either strong, moderate or weak according to how many criteria they satisfied. A weak rating meant that at least one criterion was assessed as 'fail'. Studies rated weak were excluded from the review. All the retrieved articles were read and rated independently for validity by two reviewers.

Data extraction
The primary reader of each selected paper extracted the data from it. The extracted data included: country, study design, quality criteria, participant characteristics, intervention details, outcomes, key selection criteria, results and cost outcomes.
Methods of synthesis

How were the studies combined?
The studies were grouped according to whether the interventions took place in the pre- or post-natal periods, or both. A narrative synthesis was used.

How were differences between studies investigated?
Differences between the studies were not systematically investigated.

Results of the review

Eight randomised controlled trials (RCTs), three controlled trials and one cohort analytic study were included.

Fifteen articles reporting studies of strong or moderate quality were identified from the previous review. A further 10 articles were identified as eligible for this update, of which 5 were excluded on account of a weak quality rating. A total of 20 articles were therefore included, relating to 12 studies of strong or moderate quality. Multiple articles on the same studies reported different outcomes or different times of follow-up. Seven articles related to one study, the Elmira study in the USA, which was a RCT with a follow-up to 15 years. Two studies (n=2,331) related to the pre-natal period, 6 studies (n=671) related to the post-natal period, and 4 studies (n=1,785) to both periods.

Overall, the studies demonstrated a positive impact on one or more outcomes assessing physical health, mental health and development, social health, health habits, knowledge and service utilisation. Some articles reported no effects or selective effects. No negative effects were reported.

There was no evidence of a positive effect on low birth weight, gestational age, neonatal mortality or morbidity.

One study showed significant additive effects of home-visiting in a multi-faceted programme. In other multi-faceted approaches the effect of home-visiting could not be separately evaluated.

Cost information

Limited cost information was reported within the results of some individual studies. No summary cost information was reported.

Authors' conclusions

As a delivery strategy, nurses visiting pre- and post-natal clients in the home can have significant benefits, particularly with interventions of high intensity and with clients considered to be 'at risk' due to factors such as low income and low educational achievement.

CRD commentary

The review question allowed any client-centred outcome to be assessed. Within this extremely wide scope, the other inclusion criteria were well-defined. The review processes were mainly sound, involving two reviewers in the selection and validity assessment of the articles, but the data extraction was not checked by a second reviewer to guard against errors. The search strategy was adequate, with attempts made to locate unpublished studies. Sufficient details of the individual studies were well tabulated. The validity assessments were thorough.

While the narrative approach was appropriate, the synthesis was the weakest part of the review since it was mainly confined to summarising individual studies, categorised only by the period of the intervention. The discussion was very brief and the broad conclusion about benefit did not define any type of benefit that may or may not result from home-visiting. Whilst the conclusions may be correct, it is not immediately clear that they are all justified by the results. The problem of disentangling the role of home-visiting from other components in multi-faceted interventions was discussed only briefly. It is also unclear whether the stated implication for practice, regarding increased effectiveness with clients at risk, is justified, as there do not appear to be many studies comparing clients at high and low risk from which such conclusions can be drawn.
Implications of the review for practice and research

Practice: The authors state that multiple intervention strategies are most effective, and that interventions with women at high risk (due to social circumstances, age, income, or education) have a greater impact than those directed to more advantaged women.

Research: The authors state that interventions conducted by public health nurses should be compared to those by lay home visitors with similar client populations, and that prenatal research studies need to be much larger to adequately assess neonatal outcomes.

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This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.