Effectiveness of strategies incorporating training and support of traditional birth attendants on perinatal and maternal mortality: meta-analysis


CRD summary
The authors concluded that strategies that incorporated training and support of traditional birth attendants significantly reduced perinatal and neonatal mortality. This was a generally well-conducted review, but the complex nature of the interventions, their similarity to the control treatments and the limitations highlighted by the authors should be borne in mind and the conclusions interpreted within context.

Authors' objectives
To assess the effectiveness of strategies incorporating training and support of traditional birth attendants on perinatal, neonatal and maternal mortality in developing countries.

Searching
MEDLINE, EMBASE, AMED, BNI, The Cochrane Library, CINAHL, BioMed Central, PsycINFO, LILACS, African Index Medicus, Web of Science, Reproductive health Library and Science Citation Index were searched from inception to April 2011 without language restrictions. Search terms were reported. Reference lists were searched manually.

Study selection
Randomised controlled trials (RCTs) and non-RCTs that assessed strategies for incorporating training and support of traditional birth attendants in developing countries were eligible for inclusion. Eligible studies were required to objectively report perinatal, neonatal and maternal mortality outcomes that were clinically relevant.

Included studies were of women in rural areas of developing countries such as Pakistan, DR Congo, Guatemala, India, Zambia and Brazil. Where reported, most women were aged between 20 and 35 years and had little or no education. Interventions were complex and involved various forms of education and training of traditional birth attendants, training for support workers and support from outreach clinics, resource support in the form of equipment and/or referral pathways. Studies compared strategies that incorporated training and support or additional training and support of traditional birth attendants versus strategies that provided no or minimal training and support.

Two reviewers screened studies for inclusion.

Assessment of study quality
Five reviewers were involved in assessing methodological quality of cluster RCTs using a modified CONSORT statement to adjust for cluster effects. RCTs were assessed on randomisation, sequence generation, baseline comparability, blinding, accounting for clustering and use of appropriate statistical analysis. Non-RCTs were assessed using the Newcastle Ottawa scale with items on selection and representativeness of the cohorts, ascertainment of the intervention and outcome, comparability of the cohorts and length and adequacy of follow-up. Non-RCTs were graded as having a low, medium or high risk of bias.

Data extraction
Two reviewers independently extracted data on mortality outcomes to calculate risk ratios (RRs) and 95% confidence intervals (CIs). Data were extracted separately for RCTs and non-RCTs. Where RCTs did not account for clustering, appropriate methods were used to adjust for this.

Methods of synthesis
Risk ratios and 95% CIs were pooled separately for RCTs and non-RCTs using a random-effects model weighted by the inverse of the variance. Findings were reported separately for perinatal, neonatal and maternal mortality. Number needed to treat (NNT) was calculated.

Statistical heterogeneity was assessed through visual inspection of forest plots and use of $I^2$ and $X^2$. Sensitivity analyses
were performed to exclude studies that involved the smallest differences in intervention and control and to include a subgroup of couples from one study.

**Results of the review**

Six cluster RCTs (138,549 participants) and seven non-RCTs (72,225 participants) were included in the review. All cluster RCTs were of high quality. Non-RCTs were at low to medium risk of bias for selection and low risk of bias for comparability and outcome assessment.

**Perinatal mortality:** RCTs (RR 0.76, 95% CI 0.64 to 0.88, NNT=35; five RCTs, I²=65.7%) and non-RCTs (RR 0.70, 95% CI 0.57 to 0.84; NNT=48; five non-RCTs; I²=40.2%) showed significant reductions in perinatal mortality with strategies that incorporated training and support of traditional birth attendants.

**Neonatal mortality:** RCTs (RR 0.79, 95% CI 0.69 to 0.88; NNT=98; six RCTs; I²=40.5%) and non-RCTs (RR 0.61, 95% CI 0.48 to 0.75, NNT=96; five non-RCTs; I²=19.3%) showed significant reductions in neonatal mortality.

**Maternal mortality:** Three RCTs and three non-RCTs showed no significant differences in maternal mortality with strategies that incorporated training and support of traditional birth attendants. There was no evidence of statistical heterogeneity.

Sensitivity analyses did not significantly alter the findings for neonatal or perinatal mortality.

**Authors' conclusions**

Strategies that incorporated training and support of traditional birth attendants significantly reduced perinatal and neonatal mortality.

**CRD commentary**

The review question and supporting inclusion criteria were clearly stated. Criteria for interventions were broad. A comprehensive search of the literature was undertaken without language restrictions. Each stage of the review process was conducted in duplicate, which reduced potential for reviewer error and bias. Appropriate methods were used to assess study quality and the overall quality of the studies appeared acceptable.

The authors acknowledged clinical and methodological heterogeneity between studies; some attempts were made to account for this, but some statistical heterogeneity remained unexplained. The authors acknowledged that the effect of enhanced support for traditional birth attendants could not be separated from other components of these complex interventions and none of the included studies directly compared traditional birth attendants versus no attendants. The findings should not be taken to infer the effectiveness of training and support of traditional birth attendants without other appropriate resources.

This was a generally well-conducted review, but the complex nature of the interventions, their similarity to the control treatments and the limitations highlighted by the authors should be borne in mind and the conclusions interpreted within context.

**Implications of the review for practice and research**

**Practice:** The authors stated that the consistency in the findings contributed to the generalisability of the findings and this was important for policy making. The authors stated that they could not infer that the greater the support provided to traditional birth attendants the better the perinatal outcomes.

**Research:** The authors did not state any implications for future research.

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