



Effect of participatory women's groups facilitated by Accredited Social Health Activists on birth outcomes in rural eastern India: a cluster-randomised controlled trial

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Summary

Background A quarter of the world's neonatal deaths and 15% of maternal deaths happen in India. Few community-based strategies to improve maternal and newborn health have been tested through the country's government-approved Accredited Social Health Activists (ASHAs). We aimed to test the effect of participatory women's groups facilitated by ASHAs on birth outcomes, including neonatal mortality.

Methods In this cluster-randomised controlled trial of a community intervention to improve maternal and newborn health, we randomly assigned (1:1) geographical clusters in rural Jharkhand and Odisha, eastern India to intervention (participatory women's groups) or control (no women's groups). Study participants were women of reproductive age (15–49 years) who gave birth between Sept 1, 2009, and Dec 31, 2012. In the intervention group, ASHAs supported women's groups through a participatory learning and action meeting cycle. Groups discussed and prioritised maternal and newborn health problems, identified strategies to address them, implemented the strategies, and assessed their progress. We identified births, stillbirths, and neonatal deaths, and interviewed mothers 6 weeks after delivery. The primary outcome was neonatal mortality over a 2 year follow up. Analyses were by intention to treat. This trial is registered with ISRCTN, number ISRCTN31567106.

Findings Between September, 2009, and December, 2012, we randomly assigned 30 clusters (estimated population 156 519) to intervention (15 clusters, estimated population n=82 702) or control (15 clusters, n=73 817). During the follow-up period (Jan 1, 2011, to Dec 31, 2012), we identified 3700 births in the intervention group and 3519 in the control group. One intervention cluster was lost to follow up. The neonatal mortality rate during this period was 30 per 1000 livebirths in the intervention group and 44 per 1000 livebirths in the control group (odds ratio [OR] 0.69, 95% CI 0.53–0.89).

Interpretation ASHAs can successfully reduce neonatal mortality through participatory meetings with women's groups. This is a scalable community-based approach to improving neonatal survival in rural, underserved areas of India.

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Introduction

Every year 2.7 million infants die in the first month of life, 2.6 million are stillborn, and 303 000 women die of consequences of pregnancy and childbirth.^{1,2} Most of these deaths can be prevented by increased access to known interventions before conception and during the perinatal period.² A recent analysis estimated that community and primary care strategies to increase the coverage of such interventions could prevent a third of neonatal deaths worldwide in the next 5 years.^{3,4} WHO and UNICEF's Every Newborn Action Plan⁵ recommends two main community-based strategies to improve survival: postnatal home visits for mothers and newborn infants and participatory women's groups. During postnatal home visits, health workers counsel families on essential newborn care, and examine, treat, or refer infants with health problems.⁶ Visits have led to 30–60%

reductions in neonatal mortality in proof-of-principle trials, and smaller effects in larger studies embedded within government programmes.⁷ In the women's group approach, a female facilitator supports a group through a four-phase participatory learning and action cycle. Groups identify and prioritise problems in pregnancy, delivery, and the postnatal period, decide on strategies to address these problems, implement the strategies, and assess their progress.⁸ A meta-analysis⁹ of seven trials noted that women's groups led to an overall 20% reduction in neonatal mortality, rising to 33% when more than a third of pregnant women participated in groups. Effective strategies such as postnatal home visits and participatory women's groups need to be scaled up through government systems, with a focus on high mortality areas.⁴

A quarter of the world's neonatal deaths (696 000) and 15% (45 000) of maternal deaths occur in India.^{1–10} The

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Research in context

Evidence before this study

We updated a search done for a systematic review published in 2013. Specifically, we searched for interventions with participatory women's groups in low-income and middle-income countries using PubMed, Embase, the Cochrane Library, CINAHL, African Index Medicus, Web of Science, the Reproductive Health library, and the Science Citation Index using the inception date for each database and November, 2014, as inclusion dates. The search terms used were combinations of "community mobilisation", "community participation", "participatory action", "participatory learning and action*" and "women*group*". There were no language restrictions. We included studies if they met the following four criteria: they were randomised controlled trials; study participants were women of reproductive age (15–49 years); interventions contained stages of participatory learning and action; study outcomes included maternal mortality, neonatal mortality, and stillbirths. Before this study, the evidence on the effect of participatory women's groups on birth outcomes only included studies with lay facilitators trained by non-government organisations rather than government-approved workers. A meta-analysis from seven trials found that women's groups led to an overall 20% reduction in neonatal mortality, rising to 33% when more than a third of pregnant women participated in groups.

Added value of this study

This study is the first trial of participatory women's groups done with government-approved workers. We updated a meta-analysis published in 2013 with the results of this trial (appendix). No additional, recent trials of participatory women's groups were identified; a study from Vietnam by Persson and colleagues used participatory learning and action, but this was done with local stakeholder groups based in health facilities rather than by women in the community. We compared the results of our updated meta-analysis with those

of the meta-analysis of home visiting interventions published by Gogia and Sachdev, and updated by Kirkwood and colleagues. Including this latest trial, the meta-analysis of participatory women's groups found an overall 22% reduction in neonatal mortality (OR 0.78, 95% CI 0.67–0.92) in areas with participatory women's groups, albeit with high heterogeneity between trials (I^2 69.8%; $p=0.002$).

How does this compare with the effect of home visiting interventions tested in proof-of-concept and effectiveness studies? Kirkwood and colleagues' updated review found a reduction of 45% (RR 0.55, 95% CI 0.48–0.52) in neonatal mortality rate in proof-of-concept studies and 12% (0.88, 0.82–0.95) in programme settings.

Implications of all the available evidence

Both participatory women's groups and postnatal home visits have been shown to reduce neonatal mortality, with slightly reduced effects of home visits in programme settings. Our trial, as well as the Shivgarh (India) and Hala (Pakistan) trials, suggest that participatory group meetings and home visits can complement each other effectively. The decision of how best to implement a combination of these two strategies through government health systems is likely to depend on context, particularly on mortality levels and the workloads of community health workers or volunteers. We now need operational and effectiveness research to understand the best ways to retain the effects of women's groups and home visits at scale, and to understand their impact. These community-based strategies need to be complemented by efforts to improve the quality of maternal and newborn care in health facilities. Participatory learning and action with women's groups could be used to address problems beyond the perinatal period, and further research is needed to examine its potential to improve women, children and adolescent's health across the lifecourse.

neonatal mortality rate in rural areas is twice that in urban areas (33 vs 16 per 1000 livebirths, respectively).¹¹ Several community-based strategies have reduced neonatal mortality in rural India, including home visits, participatory women's groups, and combinations of both.^{12–14} Only one strategy, the Integrated Management of Neonatal and Childhood Illness (IMNCI), has been tested with government-approved workers. Its assessment found small effects on neonatal mortality.¹⁵ Accredited Social Health Activists (ASHAs), a group of more than 900 000 trained and incentivised female community volunteers working under the National Health Mission, are an important resource to improve maternal and newborn health in India.¹⁶ They are responsible for encouraging women to access antenatal care and give birth in health facilities. They also conduct home-based newborn care through postnatal home visits, and are mandated to provide health education with local women's groups. The evidence that

women's groups can reduce neonatal mortality in rural, high-mortality settings is strong, but all trials up to now have been done with incentivised lay facilitators or volunteers rather than with community health workers working in government systems.⁹ Additionally, most rural areas in India receive a range of health systems and community interventions to improve maternal and newborn health, including the *Janani Suraksha Yojana* maternity incentive scheme and home visits for newborn care. Understanding the effect of an additional intervention such as participatory women's groups required a randomised controlled design to isolate its contribution to mortality reduction from that of other interventions.

We aimed to test the effect of participatory women's groups facilitated by ASHAs on birth outcomes, including neonatal mortality. We hypothesised that ASHAs could help with participatory group meetings, that these would lead to improvements in practices for mothers and

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