ABSTRACT

Objective: The objective of this research was to estimate the potential effect of duration of district-level exposure to the Iron Intensification Program (IIP) on Iron Folic Acid (IFA) coverage, and on anemia in mothers in Nepal.

Methods: With data of the 2006 and 2011 Demographic Health Surveys (DHS), we used multiple logistic regression modelling to estimate the effect of IIP district exposure, controlling for age, pregnancy status, wealth, religion, parity in the last 5 years, weight, education, and ecological region (Terai, Hills & Mountain regions).

Results: Women who gave birth during the IIP implementation period (n=5,110) in 2006, and already exposed to the intervention for 1-3 years had a 7% reduced odds of having anemia (OR: 0.93, 95CI 0.91,0.95). In 2011, among women who had given birth in the previous 5 years in the Terai (n=864), intervention exposure for 3-5 years suggested a 45% reduction in the odds of having anemia (OR: 0.55, 95CI 0.31,0.99).

Discussion: Intervention exposure also suggested benefits in likelihoods of mothers receiving IFA (6-11%), and deworming (12-28%).

Conclusions: These results suggest that the IIP had a role in increasing IFA and de-worming coverage and may have protected against anemia. Nepal’s example suggests that large scale national programs with long term commitment can successfully impact IFA coverage and potentially impact anemia.

BACKGROUND

- A national scale-up of an integrated facility and community-based delivery of iron and folic acid (IFA) supplements in Nepal spanned almost ten years through the Iron Intensification Program (IIP).
- Nepal’s Iron Intensification Program (IIP) has received global attention as a successful scale-up of a national iron folic acid (IFA) supplementation program for pregnant women.
- The IIP model relied upon an integrated community based delivery of IFA by extensive network of Nepal’s Female Community Health Volunteers (FCHVs).
- A gradual scale-up took place between 2003 and 2012, eventually reaching 74 of the 75 districts in Nepal, by 2012.
- Nepal’s IFA coverage increased from 23% to 59% between 2001 and 2006 and to up to 80% in 2011.

OBJECTIVES

- The objective of this research was to estimate the potential effect of duration of exposure to IIP in the district of residence on a woman’s de-worming coverage, IFA coverage, IFA adherence, and on anemia in Nepalese mothers at two time points during the national scale-up.

METHODS

- We used multiple regression of the 2006 and 2011 Nepal Demographic and Health Surveys (DHS) to estimate the possible impact of exposure to the IIP on IFA supplementation coverage, IFA adherence (>90 tablets consumed), deworming, and anemia in mothers.
- Intervention exposure was categorized based upon the number of yrs the of implementation of the IIP in and individual’s district of residence.
- The intervention exposure categories were:
  - 2006-2008: 0 yrs (reference); 1 yr, and 3 yrs
  - 2009-2011: 0-3 yrs (reference); 3-5 yrs; or 6-8 yrs.
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  - 2009-2011: 0-3 yrs (reference); 3-5 yrs; or 6-8 yrs.
- As respondents were nested within districts, sampling weights were used in the multilevel analysis

RESULTS

**TABLE 1: ESTIMATED IMPACT OF NEPAL’S IRON INTENSIFICATION PROJECT (IIP) ON IFA COVERAGE, IFA ADHERENCE, DEWORMING AND ANEMIA**

<table>
<thead>
<tr>
<th><strong>IFA COVERAGE</strong></th>
<th><strong>IFA ADHERENCE (&gt;90 TABLETS)</strong></th>
<th><strong>DEWORMING</strong></th>
<th><strong>ANEMIA</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>2006 DHS</td>
<td>Pregnant women (%)</td>
<td>Pregnant women (%)</td>
<td>Pregnant women (%)</td>
</tr>
<tr>
<td>0 yrs exposure</td>
<td>1.00 (0.84,1.20)</td>
<td>1.00 (0.84,1.20)</td>
<td>1.00 (0.84,1.20)</td>
</tr>
<tr>
<td>1yr IIP exposure</td>
<td>1.05 (0.80,1.39)</td>
<td>1.05 (0.80,1.39)</td>
<td>1.05 (0.80,1.39)</td>
</tr>
<tr>
<td>3 yrs IIP exposure</td>
<td>1.04 (0.84,1.28)</td>
<td>1.04 (0.84,1.28)</td>
<td>1.04 (0.84,1.28)</td>
</tr>
<tr>
<td>6-8 yrs IIP exposure</td>
<td>1.03 (0.84,1.26)</td>
<td>1.03 (0.84,1.26)</td>
<td>1.03 (0.84,1.26)</td>
</tr>
</tbody>
</table>

- Controlling for IIP district exposure, District Human Development Index, age, wealth index, setting (urban or rural), Number of children born, pregnancy status, wealth, parity in the last 5 yrs, weight status, education, number of people in household, currently working, and ecological region (Terai, Hill & Mountain).

CONCLUSIONS

Nepal’s IIP suggests that large scale national programs with long term commitment can successfully impact IFA coverage, de-worming coverage, IFA adherence and potentially impact anemia. Refresher training and continued investments may be needed to sustain impacts of the intervention. Additional strategies may be needed to support pregnant women in adherence to IFA.

ACKNOWLEDGEMENTS

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