Intensive counseling in the immediate postpartum period to improve maternal and neonatal outcomes: a randomized controlled trial in Kabul, Afghanistan.

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OVERVIEW

- Background
- Objectives
- Methods
- Results
- Discussion & Limitations
- Conclusions & Future Directions
BACKGROUND

- Afghanistan ranks highest in maternal and infant mortality globally.¹

- Low contraceptive prevalence rate (15% nationally), exclusive breastfeeding prevalence (35% nationally), and completion of DPT/HBV vaccination by age 23 months (43%) contribute to these statistics.²

- Urban settings have more favorable rates, but still suboptimal; e.g. contraceptive prevalence rate 28% for Kabul metropolitan area.²

References:
IS COUNSELING A Viable MODALITY FOR CHANGE?

- As the health system rebuilds, task-shifting and additions have potentially minimized the role of and time for counseling.

- Data on counseling interventions are mixed with regard to effect on breastfeeding and contraceptive use.1-4

- Counseling may represent the only sustainable intervention approach in settings where human resources are the most plentiful resource.

References:
STUDY AIMS

To determine whether immediate postpartum counseling provided by dedicated staff to women delivering in public health maternity hospitals in Kabul, Afghanistan will positively impact the following maternal and neonatal health indicators:

- Postpartum contraceptive use
- Correct breastfeeding practices
- On-time completion of infant vaccination through 12 months
METHODS

- Randomized controlled trial (www.ClinicalTrials.gov NCT01199601) of counseling intervention delivered by designated providers vs. standard of care.

- Eligible participants: women admitted in labor to any of four Kabul public maternity hospitals.

- Sampling divided proportionately between hospitals based on delivery volume.

- Consented participants received hepatitis B surface antigen (HBsAg) testing in labor; baseline questionnaire and counseling administered postpartum.

- Follow-up visits conducted at 6 and 12 months.
MEASURES & ANALYSIS

- Correct breastfeeding = exclusive breastfeeding to 6 months & supplemental feeding to 12 months.

- Contraceptive use: lactational amenorrhea method accepted to 6 months, withdrawal included as method.

- Vaccination timing based on national schedule.

- For key outcomes, risk ratios calculated with generalized linear mixed models considering clustering by site and, for multiple measure outcomes, by individual.

- Regression models constructed with inclusion of confounders, significant covariates, and time from intervention.
There were no significant differences between those lost to follow-up and retained participants with respect to arm assignment ($p=0.25$), age ($p=0.25$), or parity ($p=0.60$).
Table 1. Significant differences in demographic and reproductive health characteristics between intervention and control participants in a postpartum counseling trial in Kabul, Afghanistan (N=844).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Overall Mean+SD</th>
<th>Intervention Mean+SD</th>
<th>Control Mean+SD</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interval between Pregnancies*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(years)</td>
<td>1.95±0.84</td>
<td>1.87+0.78</td>
<td>2.02+0.89</td>
<td>0.065</td>
</tr>
<tr>
<td>Health Variables:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ever seen physician</td>
<td>329, 39.0%</td>
<td>142, 33.6%</td>
<td>187, 44.3%</td>
<td>0.001</td>
</tr>
<tr>
<td>Prior Death of Child*</td>
<td>86, 14.5%</td>
<td>48, 17.1%</td>
<td>38, 12.2%</td>
<td>0.094</td>
</tr>
<tr>
<td>Reported Poor Health Status</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before This Pregnancy</td>
<td>58, 6.9%</td>
<td>21, 5.0%</td>
<td>37, 8.8%</td>
<td>0.023</td>
</tr>
<tr>
<td>Current Pregnancy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unplanned</td>
<td>196, 23.2%</td>
<td>86, 20.5%</td>
<td>110, 26.3%</td>
<td>0.046</td>
</tr>
</tbody>
</table>

*Prior health behaviors potentially influencing outcome:

Prior contraceptive use                | 294, 34.8%       | 149, 35.3%            | 145, 34.4%      | 0.773   |
Prior child vaccination*                | 543, 91.7%       | 262, 93.2%            | 281, 90.4%      | 0.874   |
Breastfeeding in prior birth*           | 542, 91.6%       | 261, 92.3%            | 281, 90.4%      | 0.941   |

*Denominator is parous women (N=592; 281 intervention, 311 control)
HBV PREVALENCE & 12 MONTH OUTCOMES

- HBsAg prevalence was 2.1% by rapid test; 11 samples receiving confirmatory testing had detectable HBV (4 samples missing & 3 with insufficient serum).

- At one year, most (95.4%, N=665) infants were alive. Of 32 deaths, 6 were stillbirths, 16 were early neonatal deaths, 8 occurred between 6 weeks and 6 months, and 2 occurred between 6 months and 1 year.

- There were 131 incident pregnancies, with 26 (19.8%) reported at six months.

- There were no significant differences between experimental arms for child survival (p=0.22) or incident pregnancy (p=0.48).
METHOD MIX & MODERN METHOD USE

- Only 38.2% (N=266) participants were using modern methods at 12 months.

- Method mix indicates over-reliance on male methods:

<table>
<thead>
<tr>
<th>Method</th>
<th>6 months (%)</th>
<th>12 months (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lactational Amenorrhea Method</td>
<td>0.5%</td>
<td>-----</td>
</tr>
<tr>
<td>Male condoms</td>
<td>18.9%</td>
<td>21.2%</td>
</tr>
<tr>
<td>Withdrawal</td>
<td>19.7%</td>
<td>20.2%</td>
</tr>
<tr>
<td>Depo Provera</td>
<td>6.0%</td>
<td>5.0%</td>
</tr>
<tr>
<td>Oral contraceptive pills</td>
<td>4.8%</td>
<td>7.6%</td>
</tr>
<tr>
<td>IUD</td>
<td>3.1%</td>
<td>4.0%</td>
</tr>
<tr>
<td>Female surgical sterilization</td>
<td>0.1%</td>
<td>0.3%</td>
</tr>
</tbody>
</table>
Table 2. Effect of counseling intervention on key outcomes and their components in generalized linear mixed models among postpartum women in Kabul, Afghanistan.

<table>
<thead>
<tr>
<th>Single-Measure Outcomes</th>
<th>Intervention</th>
<th>Control</th>
<th>RR, 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPV Completion 10 mos</td>
<td>218, 64.3%</td>
<td>221, 64.1%</td>
<td>1.01, 0.90 – 1.13</td>
</tr>
<tr>
<td>DPT/Hib/HBV completion</td>
<td>258, 76.1%</td>
<td>262, 71.8%</td>
<td>1.01, 0.93 – 1.10</td>
</tr>
<tr>
<td>DPT/Hib/HBV completion by 16 weeks</td>
<td>182, 53.7%</td>
<td>153, 44.3%</td>
<td>1.21, 1.04 - 1.41</td>
</tr>
<tr>
<td>Measles Vaccination 10 mos</td>
<td>235, 71.2%</td>
<td>211, 63.2%</td>
<td>1.13, 1.01 - 1.25</td>
</tr>
<tr>
<td>Overall Vaccine Completion</td>
<td>113, 33.3%</td>
<td>104, 29.9%</td>
<td>1.11, 0.89 - 1.38</td>
</tr>
</tbody>
</table>

RR: risk ratio
CI: confidence interval
OPV: oral polio vaccine
DPT/HiB/HBV: pentavalent (diptheria/pertussis/tetanus/Haemophilus influenza B/hepatitis B virus) vaccine
### Table 3. Multiple Measure Outcomes and Components:

<table>
<thead>
<tr>
<th></th>
<th>Intervention</th>
<th>Control</th>
<th>IRR, 95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Contraceptive Use:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 months(^+)</td>
<td>196, 55.7%</td>
<td>175, 48.1%</td>
<td>1.12, 1.02 – 1.23</td>
</tr>
<tr>
<td>12 months(^++)</td>
<td>212, 61.8%</td>
<td>200, 56.5%</td>
<td>1.16, 1.00 – 1.35</td>
</tr>
<tr>
<td><strong>Correct Breastfeeding (BF):</strong></td>
<td></td>
<td></td>
<td>1.09, 1.03 – 1.16</td>
</tr>
<tr>
<td>Excl. BF, 6 mo(^*)</td>
<td>240, 70.8%</td>
<td>198, 57.4%</td>
<td>1.10, 1.02 – 1.18</td>
</tr>
<tr>
<td>Suppl. BF, 12 mo(^***)</td>
<td>277, 89.6%</td>
<td>284, 89.6%</td>
<td>1.24, 1.12– 1.37</td>
</tr>
</tbody>
</table>

*Of 345 control and 339 intervention respondents with living children at 6 months.

**Of 334 control and 330 intervention respondents with living children at 6 months.

†Of 364 control and 352 intervention respondents.

‡‡Of 354 control and 343 intervention respondents.

**Of 317 control and 309 intervention respondents with living children at 12 months.

RR: risk ratio

CI: confidence interval
MULTIVARIATE RESULTS

- For breastfeeding, positive effects (ARR=1.10, 95% CI: 1.01 – 1.18) persisted for the intervention group in a model adjusted for: time, having a television in the home, & husband’s educational level.

- For postpartum contraceptive use, positive effects (ARR=1.13, 1.06 – 1.19) persisted for intervention in model adjusted for: infant survival to one year, having a television in the home, participant & husbands level of education, time, & having lived outside Afghanistan in the last 5 years.
DISCUSSION: CONTRACEPTION

- Concentrated counseling has positive impact on breastfeeding, contraceptive use, & marginally on vaccination completion.

- Contraceptive benefits relative in light of high incident pregnancy rate. Modern method use quite low.

- Lactational amenorrhea method rarely stated as a method, potentially reflecting low awareness.
DISCUSSION: VACCINATION

- High vaccination rates reassuring; measles & DPT vaccines emphasized to reflect active access of health services.

- Though Kabul is among best-resourced areas of the country, gaps remain for attaining vaccination not remediable with counseling alone. National campaigns have positive effect in urban areas and should be continued.
DISCUSSION: BREASTFEEDING

- Concentrated counseling significantly impacted breastfeeding behaviors, particularly through the first 6 months. Effect partially attributed to mother-in-law attending counseling sessions.

- Provider cadres for intervention were midwives and vaccination health workers. Results clearly demonstrate counseling efforts may be improved with demonstrable effect, were a new provider cadre or “protected time” for counseling given to an existing cadre implemented.
LIMITATIONS

- Follow-up rates were relatively low. Shorter interval to first follow-up & utilization of mobile phone follow-up recommended.

- While vaccination dates were recorded directly from the infant record, there were numerous entries ticked without a date recorded. NID dates used for some missing DPT vaccination data, not reflecting vaccine administered.

- Nearly all data by self-report. Low literacy precluded self-administration of questionnaires for most participants and ACASI was not feasible for this study.
CONCLUSION & NEXT STEPS

- Concentrated counseling has modest effect on some health behaviors and would likely be augmented by inclusion of the husband.

- Immediate postpartum IUD provision receiving emphasis at provider level; however, data indicate organized involvement of husband necessary for method uptake. Contraceptive implants would also be viable option in this time frame.

- Heavy donor investment in midwife development; couples counseling & immediate postpartum method provision may be a worthy pilot program for this cadre.
ACKNOWLEDGMENTS

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