Author’s response to reviews

Title: Antenatal care strengthening for improved quality of care in Jimma, Ethiopia: An effectiveness study

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Author’s response to reviews: see over
Answer to reviewer’s reports, March 2015

Thank you very much for your re-review of our manuscript which has led to sustained reflection followed by clarifications. We hope you find the corrections and comments fulfilling. Please find below our point-to-point responses in italic to the reviewer comments.

Reviewer’s report: Albrecht Jahn

Comment 1

1. The authors describe the intervention was developed bottom-up and complex. Thus they were more interested in the process, which is well described.

Our answer:

In the field of complex interventions, process evaluation is not considered a substitute for evaluation of outcomes (Craig et al in the MRC guidance from 2008 (reference 36 in the manuscript)). In line with this, we disagree with the expression that we were more interested in the process than the outcome measures. In order to make our understanding of the mutual interdependency of the process and outcome evaluation clearer we have elaborated on the meta texts and would like to bring your attention to line 140 “In the result section of this manuscript the implementation process and the outcome evaluation are presented separately, however in the discussion the findings are synthesised to analyse how our program theory managed or did not manage to create changes and why”.

And to line 372: “In the result section we have analysed the implementation process and the outcomes of a complex, health system strengthening intervention for improved ANC in a low-income setup. In the following we will synthesise the main findings and illuminate the mechanisms of the intervention to study what worked where, under which circumstances and contextualize the findings with previous insight in the field.”
Comment 2

2. However, they still use the survey data for a statistical analysis with respect to specific outcomes and report significant beneficial effects on education on danger signs during pregnancy (OR: 3.9, 95% CI: 2.6;5.7), laboratory testing (OR for blood tests other than HIV 2.9, 95% CI: 1.9;4.5), health problem identification (OR 1.8, 95% CI:1.1;3.1), and satisfaction with the service (OR: 0.4, 95% CI:0.2;0.9).

Which outcome measures were defined at the beginning of the study?

E.g. why were skilled delivery care/place of delivery not included as outcome measures while encouraging skilled delivery care is an important objective of ANC?

Our answer:

As shown in Table 1, the before-intervention survey was completed before the first activities were lounged, thus all the proximal and distal outcomes were specified and measured prior to the initiation of implementation.

From the beginning we planned to study the changes in ANC provision (content of care) and how those changes translated into improved quality of care (measured by satisfaction with ANC in the survey and identification and management of complicated pregnancies from routine data (see below for discussion of the routine data)). Further, we wanted to study if improved content of care translated into improved health behaviours (measured by number of ANC visits during pregnancy, place of delivery and breastfeeding practices).

We find it important to report the effect on place of delivery, however we have decided report the evaluation of the study in two manuscripts, as we write starting in line 232. The outcomes included in present manuscript have a right on their own and should not be forgotten in the discussion of the merits of ANC. In the background for this paper we have highlighted the importance of ANC for treatment of maternal infections that directly leads to improved maternal health and child health and mortality. Starting in line 61:

“Antenatal care (ANC) is a global health system approach to improved maternal and infant health [4-6] as ANC is considered to reduce maternal and perinatal morbidity and mortality directly through detection and treatment of illness and indirectly by improving the health behaviors of the woman. Prevention, screening and treatment for infections prevent fetal loss, preterm delivery, low
birth weight and maternal and infant morbidity [5] and anti-tetanus immunization and prevention of mother-to-child-transmission of HIV (PMTCT) is known to protect infant health [7].“

To emphasize the efforts of ensuring maternal health during pregnancy (identification of health problems), we have clarified the content of the guidelines developed due to the intervention (could be forwarded on request). See line 208:

“The ANC guidelines included 1) a description of timing and content of the four visits 2) a list of pregnancy conditions and management procedures both for the health centres and the referral hospital level, 3) a list of the common laboratory test recommended to pregnant women, how to interpret the results and treatment regimens 4) the privacy guideline and 5) the health education material. The guidelines were distributed to all intervention facilities.”

If the editors request it, we are willing to consider submitting the second manuscript on health promoting behaviors (where we include the analysis of the effectiveness of the intervention on skilled delivery) to BMC Public Health.

Comment 3

3. It appears that all data were derived from the postnatal survey. Were antenatal and delivery records checked along with the interviews? Is the information provided on specific tests and ANC interventions based on postnatal interviews with mothers, only?

Our answer:

Women did not hold their ANC cards at home, thus we had no chance to check these in the household during the interview. We did collect routine data from the facilities to study both the content of care in each visit and the number of complicated pregnancies identified and how these were managed (treatment given, referral to hospital etc.). However, as we state in the discussion starting in line 477:

“The routine registration was very inconsistent, and it was not monitored and didn’t seem to be subject to much reflection. We planned to include routine data from the ANC charts kept at the facilities in present study, and the data were collected as consistently as possible before, midway, and after the intervention. We tried to identify the charts prospectively and retrospectively, but they
were misplaced, lost, or reused. Thus, the validity was too poor for the data to be included in the present study."

Therefore, we had to rely on the survey data combined with the supervision reports from the facilities. In the survey, we aspired to ask the questions in general terms to not challenge the mother’s recall. For example we asked the women to assess if specific services were conducted at least once during ANC. The degree of recall bias introduced by interviewing up to one year after delivery was not specifically assessed in this study. However, our questions were kept at a similar or more general level than questions regarding ANC in the DHS data, where they in the 2011 version are asking women to remember the services received five years back.

**Comment 4**

4. Only intervention facilities received material and equipment for tests from the project; thus having more tests there, is a self-fulfilling prophecy, and simply measuring your input. This limitation should be mentioned on the discussion.

*Our answer:*

*Thank you for this comment. We have now written starting in line 422:*

“The effect of the intervention should be understood in light of the donations provided, and could thus be considered a direct reflection of our own inputs. However, the laboratory services were kick started with three months input for a revolving fund, and the funding was sustained after the donation expired. Having the equipment available is not always enough for actions to happen and the participatory approach including trainings and regular supervisions might have had significant implication.”

**Reviewers report: Bukola Fawole**

A little point for Author's attention is Figure 1; this is a Table and not a Figure

*Our answer:*

*We have now changed the figure to a table.*