Reviewer's report

Title: Levels and determinants of completing the continuum of care for maternal and newborn health in Cambodia-evidence from a population-based survey

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Reviewer: Saifuddin Ahmed

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Levels and determinants of completing the continuum of care for maternal and newborn health in Cambodia-evidence from a population-based survey

Review comments:

Antenatal care (ANC), delivery care from skilled birth attendants and postpartum care are the three major interventions in the motherhood initiative programs for reducing maternal and perinatal mortality. The vast majority of studies on maternity care, however, are focused on ANC or delivery care only, with little attention to postpartum care. This is an egregious failure considering that in many settings most maternal deaths occur due to hemorrhage and sepsis during the postpartum period. This paper has significant potential to advance our knowledge base to better understand the individual and contextual factors that affect the continuum of maternity care seeking behavior - from ANC to PP care - in Cambodia.

This manuscript is succinctly well written and clearly presented. However, the literature section may be improved further to reflect the earlier study deficiencies, justifications for the rationale of the study, including the conceptual frameworks on maternity care, which served as the analytical basis of the paper. Because the focus of the paper is the identification of the barriers to care, the authors may consider briefly discussing inequity and reasons for no or limited maternity care as illustrated from the other DHS countries.

I present below my major comments to improve the paper.

In maternal health literature and by the World Health Organization, the postpartum period is designated as the first 6 weeks after delivery (PP is not formally defined by the WHO). The authors decide to use 48 hrs cutoff periods, which needs justifications. Women delivering at health facilities, especially after CS, are likely to be seen during the 48 hrs pp period and thus highly correlated. This may attenuate the effects of the covariates that may increase propensity to deliver at a health facility. PP sepsis is unlikely to develop during this very early period and care seeking for such causes may be ignored. WHO recommends that women who have delivered in a health facility should receive PP care for at least 24 hours after birth. If a birth is at home, the first postnatal contact should be as early as possible within 24 hours of birth. Three additional PNC contacts are recommended on day 3, between days 7–14 after birth and 6 weeks after birth (see: World Health Organization. WHO Recommendations on Postnatal
Care of the Mother and Newborn, October 2013).

The statistical analysis section needs more details. The paper used weighting in the descriptive analyses. Not sure whether the regression models were weighted.

Modeling the continuum of care through three stages is not straightforward. The authors used three models: in the first model all data were used and the outcome was ANC; in the second model, the sample was limited to those who utilized ANC, and the outcome was delivery by SBA; and the third one was limited to those who utilized ANC and delivered with SBA and the outcome was PP care. As the Table 2 shows, some women delivered at health facility without ANC, and some women received PNC (postnatal care) without delivery care or ANC (approximately 12%). How the exclusion of such women may affect the study inference and results?

A simpler approach could be the application of a “multinomial model” with “Table 2” outcomes (some categories with small n combined, providing such classifications as no care; completed care; incomplete care in order, etc). This might show the “dose-effect” of wealth quintile/SES, which is the only variable shown to be significant across all the models.

The type of provider and the type of health facility from which received ANC may affect subsequent care, which may be included in the model. Blood sample taken, BP measured, Urine sample taken may show the extent of the specific services received and thus may reflect the quality of the ANC. May consider to use a summative score with all the services received during ANC (e.g., TT, nutritional counseling, iron tablets received, etc) as a proxy for QOC.

The CDHS does not collect data on maternal complications. Many variables may have relevance to complications. For example, women with complications may receive multiple rounds of ANC visits and more likely to deliver at health facilities. So, 4+ ANC visits or giving blood samples may reflect the quality of care or the presence of complications. The authors may consider presenting these confounding issues, which the study could not address, in the limitations section.

Minor points:
May consider moving Table 1 from the Method section to the beginning of the Result section.
Figure 2 may show with different wealth quintiles, including total.

**Level of interest:** An article of importance in its field

**Quality of written English:** Acceptable

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**
One of the authors (WJ) is known to me while she was a student the JHU.
I declare that I have no competing interests.