Reviewer’s report

Title: Distribution and quality of emergency obstetric care service delivery in the Democratic Republic of the Congo: It is time to improve regulatory mechanisms

Version: 3 Date: 31 Jan 2019

Reviewer: Wit Wichaidit

Reviewer's report:
The authors have made notable improvements to the manuscript since the last round of iteration. However, a number of revisions are needed in order for the manuscript to be of publishable quality, as follows:

ABSTRACT
Background:
- I think that a big part of the study was the assessment of equity and this should be mentioned in the aim statement, such as "The aim of this study was to assess the availability and quality of emergency obstetrics care and its equity in the Democratic Republic of the Congo".

Methods:
- I don't think the quotations marks (""") are needed for "availability of emergency obstetric care (EmOC)" and "quality of EmOC". Simply delete them.
- Setting up the methods by listing dependent and independent variables may not be needed as this makes the paper looks like an experimental study, and the aim statement in the Background section already has made this clear.
- I would rather write something that is coherent with the aim and the first two sentences of the sub-section, such as "Collected data included availability and quality of emergency obstetric care (EmOC), province, urban vs. rural location, and type of health facility."

Results:
- Elaborate more on the unequal distribution of EmOC: where was EmOC lacking (rural areas? provinces in which part of the DRC?)
- To save space, and as you already defined EmOC as the abbreviation for emergency obstetric care, maybe it's a good idea to replace "Emergency obstetric care" with "EmOC" to save space and word count?
- Provision of caesarean section and blood transfusion (2 different services) were provided by health centres and health posts (2 different types of facility), so there should be 4 different numbers instead of 2 numbers here. Suggest changing to "Caesarean section and blood transfusions were provided by health centres (6.5% and 9.0%, respectively) and health posts (2.3% and 2.3%, respectively), despite current guidelines disallowing the practice."

Discussions:
- In the first sentence, beside from inequity, also make a remark regarding caesarean section being performed in places that are not allowed. This will allow for a more coherent flow of the content to the second sentence.
Plain English summary
- Change the content as you deem appropriate to be coherent with the revised abstract.

BACKGROUND
- In the second paragraph, add 1-2 sentences at the beginning to give some context of the DRC that may affect maternal and child health (low-income, high birth rates, educational gaps, [and if you wish] multiple on-going conflicts)
- In the last paragraph, change the last 2 sentences (the knowledge gap and the aim) to match the revised aim in the ABSTRACT section (to assess both availability & quality of EmOC, and equity in EmOC).

METHODS
Study setting
- I believe that this entire sub-section is more suited for the BACKGROUND as it provides very insightful information on the context of the DRC. I would recommend moving and integrating information in this sub-section with the 2nd and 3rd paragraphs of the BACKGROUND section

Study design
- Replace the first paragraph with "This is a cross-sectional study conducted in health facilities in the DRC conducted from April 2014 to June 2014."
- The last paragraph of this sub-section appeared to be more suited for a small, separate sub-section on Data Collection Procedures. Please start a new sub-section called "Data Collection Procedure" and use "Before collecting the data, we contacted provincial health officials to determine how to access each selected facility and what resources were needed." as the first sentence. Follow that with a brief description of what data collection entailed (interviews only? review of service-related logbooks and documentations?). Also move most of the first paragraph of the "Data Collection and Analysis" sub-section here ("Data in each facility were collected by two staff members (doctors and nurses) recruited from health facilities not selected for the study recruited and trained as interviewers. They visited all facilities selected in the pool and collected data through structured interviews with managers and heads of reproductive health EmOC service; performed documentary reviews and direct observation. One interviewer asked the questions and recorded the answers on a paper form while another recorded the same information on a laptop computer. Before leaving the facility, the two interviewers resolved any discrepancies between the paper and electronic forms. Data quality control was done by supervisors who revisited a 10% sample of facilities, selected randomly to validate the data.")

Main Variables of the Study
- Simply state that "An index of availability of EmOC and an index of quality of EmOC were calculated by modifying WHO-proposed tools [32]."

Data Collection and Analysis
- After moving the first paragraph to an earlier part of METHODS, please change the name of the sub-section to "Data Analysis"
- In the first paragraph, mention data management and data cleaning. Mention cross-tabulation between availability and quality of EmOC and equity-related variables (provinces, urban vs. rural areas, etc.) in a sentence before "Pearson's Chi-square test...".

RESULTS
- In the fifth paragraph, change the first sentence from "In relation to the administrative identity of the health facility, basic EmOC (p<.001) and comprehensive EmOC (p=.012) were significantly more available in private compared to public health facilities." to "Basic and comprehensive EmOC service availability were significantly higher in private health facilities than in public health facilities".
- It might be a good idea to tidy up other parts of the RESULTS section this way and highlight the findings without going too deep in the exactly percentages and p-values. Note the highlights that you want the readers to see.

DISCUSSIONS
- In the first paragraph, instead of re-stating the results, mention the importance and significance of this study to public health in the DRC for 1-2 paragraphs, then describe the main message of the findings in the next sentence.
- No need to refer to Figures or Tables here (such as "Figure 1 illustrates that a quarter of all health facilities did not provide assisted vaginal delivery."): just state the finding that you want to discuss and make your discussion point.
- Also mention potential sources of errors in the estimates when you discuss them: could there be anything that led to under-reporting or over-reporting of EmOC service availability and quality?

The health system in the DRC is facing the challenge of poor regulation
- You seemed to highlight delivery of Caesarean section and blood transfusion by health centres and health posts despite disallowing guidelines in the Abstract, and mention poor regulation as a contributing factor. Maybe it will be a good idea to start this sub-section with that part? Make the third paragraph of this sub-section the first one. This may allow the subsequent paragraphs to have a better flow of ideas as well.

Level of interest
Please indicate how interesting you found the manuscript:

An article of importance in its field

Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable

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