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Potential competing interests: No potential competing interests to declare.

This is a research work on a very important area given the importance of vaccines in preventing childhood diseases. The manuscript has improvement opportunities and the authors can consider revising the following sections:

1). Focusing on invalid doses from the introduction section and consistently sticking to the topic throughout the manuscript. Therefore, there is a need to define what constitutes an invalid vaccine dose right from the introduction section for readers to understand from the beginning. While defining an invalid vaccine dose, ensure to base it on existing literature. For example, is it true that the first dose of the measles vaccine received one week early is invalid? Consider having a time range for each vaccine of interest based on literature because, severely delayed vaccines can also be invalid.

2). Consider adhering to conventions of writing literature section, i.e., you may want to adopt the funnel shape style. Start by providing details from international, regional and then national.

3). In the second paragraph under introduction, it is not clear how rapid population growth and mushrooming of service providers from public and private sectors lead to low vaccine coverage.

4). A statement, “To investigate why children are being provided invalid vaccine doses” sounds like it is an approved practice.

5). It is okay to delete the last paragraph under introduction section.

Methodology

1). Can be organized better and adequate details provided to allow replicability.

2). As is, it is not clear which data points were collected.

Results

1). Both caretakers and service providers were interviewed. The interaction with the service providers is scantily reported. The qualitative data is reported as a discussion not results. Consider using verbatim reporting format for the results.
section contrary to the discussion approach.

2). Table 1: It is not clear why we have two columns, fathers and mothers, does it mean both parents were interviewed? You could make it additional variable where you specify parent interviewed but not two columns. In addition, the mean and mode columns are not necessary because you categorized age of respondents, otherwise, you would have presented, mean(SD) or median(IQR).

3). “Invalid vaccine dose” is a term coined by healthcare providers and researchers and hence I am not sure how practical it is to ask of the caretakers.

Discussion

1). While being brief is recommended, care needs to be taken so as not to under discuss the study findings.

2). Avoid starting statements with connector words such as “but”. On the same note, when using figures at the beginning of a statement, consider writing it in words. This comment regards a statement under abstract.

Finally, the manuscript can benefit from editing services.