

Review of: "Assessing the knowledge, attitude, and practice (KAP) of parents and service providers' perceptions on invalid vaccine doses: A study in urban slums of Bangladesh"

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Potential competing interests: No potential competing interests to declare.

Thank you for the invite to review the manuscript.

1. Title

- a. The study subjects should be changed to mothers in the title.
- b. "in Urban Slums of Bangladesh" should come before the colon followed by study design.

2. Abstract

- a. The abstract started with aim of the study. However, it should start with the background of the study—why the study was carried out.
- b. *"The immunization practice was significantly associated with the number of living children (p-value:0.004). First* you have to report the result regarding practice of respondents.
- c. There is no clear report on knowledge, attitude, and practice of respondents.
- d. The conclusion is inadequate to reflect the findings of the study. It should emphasize on strategies that enhance mothers' awareness as well as mitigating invalid vaccine provision.

3. Introduction

- a. Paragraph 5 , "One study in India [14] found that the low rate of education of the mother,...." This one is not relevant to the research question as it is about factors that affect low vaccination coverage whereas the present study's objective was about invalid vaccine. Besides, the literature review should focus on the KAP of mothers regarding invalid vaccine doses.
- b. The research question could be removed as it is a repetition of the research objectives—stated underneath.
- c. The last paragraph should be removed as this transition is usually provided in texts with multiple chapters such as dissertations.

4. Methodology

- a. The methodology should have subsections for each elements of the methods such as study design, study site, sample size.....

- b. The study site is not clearly described. DNCC?? Do not abbreviate in a first mention.
- c. The inclusion and exclusion criteria of mothers is not clearly stated.
- d. “Fully vaccinated: A child is fully vaccinated if the child has received all recommended doses according to the national immunization schedule by 12 months of age.” A child could not take all vaccines at 12 months because MR2 is given at 18 months.
- e. The sample size estimation, with the given values and formula, the estimated sample is around 400 not 440. However, the respondents were 456; so why is the discrepancy? Why you did not account for non-response rate? Why did you adjust to design effect? This is used if there is clustering effect due to the involvement of cluster sampling, however, the study design did not use this technique.
- f. Sampling procedure is missed. You did not state how respondents were selected in the slums. How many slums were considered? How did you allocate the sample to the slums? The title indicated that the study was carried out in “slums.”
- g. The data analysis part is not adequately described and it is also not clear.

5. Ethical consideration

- a. You should declare that the study obtained ethical clearance (ethical approval) by a legitimate body in Bangladesh.

6. Result

- a. The sociodemographic characteristics of respondents was not described. Even though the information is presented in the table (Table 1), textual description should be provided for the significant points.
- b. How come the fathers' information? The respondents were only mothers but Table 1 included fathers too.
- c. “Source: Field Survey, 2020...” This should be deleted. You only cite a table or a figure if it is reproduced—taken from other sources. However, the data presented in all tables are your data collected for the present study, so you do not need to do so.
- d. The mean of continuous variables is good to report in the text or/and in a table, but the way it is presented need to be revised. The mode might not be informative and could be dropped.
- e. The table title (all table titles through out the document) is not informative—use a title that includes person, time and place as well as the number of respondents (n).
- f. The word parents is not appropriate as all respondents were mothers.
- g. There is discrepancy in the number of respondents in table 2—that is, numbers do not add up to 456. Similarly, there is discrepancy in the variable “Condition of child's vaccine card” who said “Card was given and still available (368) and “Vaccination card is available” who said “yes” (325).
- h. Table 3 is not described well textually—a reader should be able to understand the results from the text without reading the table and vis versa. It is also difficult to understand it. The title as well as the column headings are not self-explanatory—the phrases “where”, “when” ... not clear. All information should be given—for instance, BCG for “which” 12.6%, what did this tell? What did the remaining 87.4% tell? What are the blank cells (-)? Similarly, Table 4 needs to be revisited. Parental?? Did the variable “Perception of Government Routine Immunization Program”

have only “very good” and “good” levels?

- i. The question regarding to attitude, *“Child received vaccine under the Routine Immunization”*, did not seem appropriate.
- j. Table 5 should also be revisited regarding the title as well as the format. Moreover, the table is not described in the text. There are also two paragraphs, one sentence above the table and the other beneath the table, so merge them.
- k. Give a separate section for the association between KAP and sociodemographic characteristics. The association between KAP and sociodemographic characteristics is not clear. There are duplications. Which knowledge question (as there are several knowledge questions) was used? Was it appropriate to take only one knowledge question to measure the association? Had you calculated a comprehensive knowledge based on all knowledge questions obtained in this study it would have been fine. Similarly, there were many vaccines, so which one was used to assess the association? Was it appropriate?
- l. The numbers in Table 6 do not add up to 456.
- m. In the qualitative result, *“They changed their vaccination center to avoid service charges, but no one allowed them, and finally lost interest in completing the vaccination schedule of their children.”* Not clear. The factors identified as reasons for invalid vaccine doses should be taken as themes (sub sections), however, Figure 1 should be dropped (deleted). All facts presented should be accompanied by quotes from respondents (at least one quote for each fact you present).

7. Discussion

- a. The narratives given regarding to BCG and DPT should be removed from the discussion section and move to the introduction section.
- b. *“27% can memorize correctly that the PCV vaccine was given to their child on the right thigh.”* This was not presented in the result section—new facts should not come in the discussion without first discuss them in the result section. So, all those new facts brought in the discussion should either first be discussed in the result or should be dropped.
- c. *“This study has some limitations as we have collected data from the mothers who can show their child’s immunization cards to the study personnel.”* Data were collected from 456 mothers for most of the variables with exception of vaccination coverage.
- d. *The effect of self-report was not addressed in the limitation.*
- e. *The findings were not compared with the literature—findings of similar studies.*
- f. *What is the policy implication of your study?*

8. Conclusion

- a. *“The study contributes to identifying the possible reasons for providing invalid vaccine doses to children by assessing parents’ knowledge, attitudes, and practices regarding vaccination schedules under the routine EPI of Bangladesh.”* Revisit this statement.

