

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 inviting me to read and review this paper.

Abstract should generate a genuine curiosity for reading this paper. So it would be of greater impact if you approach this section in a "storytelling" manner. It could help to motivate reader to dive-in this research paper if you present briefly current level of knowledge in this area and also the aim of study, with speculation on potential practical tools that could be used to increase vaccine coverage. Physicians working in similar places could be attracted by your research, hoping to find a tool-kit suitable for other unprivileged communities.

In **Abstract** section you are stating "99.34% had good experience in vaccination services, and 95.83% believed that this service increased their children's immunity". This statement needs a more nuanced approach because it is not clear what implies "good experience in vaccination service"; another issue that could be approached for clarification is discrepancy between this statement and formulation included in Results section - "Among 456 respondents about 98% respondents claimed that they knew about the immunization program" (it is strange to have good experience in something you do not even know about - 99.34% versus 98%).

In **Introduction** section that is slightly too long you can relocate this statement ("The latest Bangladesh EPI coverage evaluation report 2019 showed that the highest number of invalid doses were for measles rubella (MR1) vaccine (7.8%) and the lowest numbers were for Pentavalent2 and Pentavalent3 vaccines at 1.0 %, which was higher in urban areas. Nationally, the highest percentage of invalid doses was recorded in Dhaka North City Corporation (DNCC), with the highest rate being for invalid Pentavalent3.") in **Discussion** section, in order to compare these findings with your results.

Another phrase that seems to be misplaced in **Introduction** section is "Another study conducted in 41 Gavi-eligible countries found that universal coverage of the measles, rotavirus, and pneumococcal conjugate vaccines (PCV) could avert a significant portion of disastrous health expenditure." What is the relevance of this sentence in a context that should provide context for generating this research?

It seems that numbers are incorrect in this statement found in **Methodology** section : "Dhaka division contains the largest proportion of the slum population at 48%, whereas DNCC contains 1,35,061 households in slums (23%)", because in

next sentence you are stating “Dhaka South City Corporation contains **40,015 households** in slums (7%)”. Please revise accordingly.

In same section you are stating “They were asked the number of each type of vaccination received(**card validated**) to avoid the recall bias issue as well as their satisfaction, perception, practice during that time.” This methodological aspect is avoiding recall bias but generates another type of bias because families that keep records of immunizations, for card validation, could have a different attitude regarding health care (more proactive, more concerned on prevention and healthy habits, etc.) than average mother in this slum area.

In **Data Collection** section you are stating “Data from quantitative part were collected by using a structured questionnaire during January 2020. Experienced and skilled interviewers about immunization activities collected data in their smart phone and after rechecking the data, they sent data online. Qualitative data was collected during November 2020 to February 2021 due to nation-wide Covid situation.”

Please correct **Covid situation** to **COVID-19 pandemic** or other similar academic phrasing.

Delay of one year in Qualitative data collection in a context when hesitancy regarding vaccine against SARS-CoV-2 virus was increasing worldwide, in Social Media and Conventional Media, could generate a significant error of sampling. COVID-19 vaccine hesitancy has influenced parental perception and uptake of regular vaccines in children, according to WHO/UNICEF data - www.unicef.org/reports/state-worlds-children-2023 (here we can find this statement “The COVID-19 pandemic has been a disaster for childhood immunization. This edition of The State of the World’s Children reports that **in just three years, the world has lost more than a decade of progress**”). Please comment on this issue in Limitations of study section.

In **Ethical Consideration** section you are stating “All data were collected from both mothers and service providers with written informed consent that they voluntarily participated in this study.” and in table 1 you are presenting 8 illiterate mothers and 70 that barely can read and write. Please clarify.

in **Results** section table 1 is extremely unfriendly, because of the Father column that is distracting and bring data that are not relevant to maternal attitudes and knowledge. Father column can be presented for Socio-economical reasons as a separate table as an Annex.

In Parents Knowledge of Routine Immunization Program section you are stating “Among 456 respondents about 98% respondents claimed that they knew about the immunization program...”. This could be rephrased “...respondents claimed that they **heard** about” or a similar statement, because ‘*knew about*’ is refuted by your findings.

Table 2 has conflicting data :

Card was given and still available	368 (81.24)
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and

Vaccination card is available	
Yes	325 (71.74)

Please clarify discrepancy 81% versus 71%

In Table 3 there are data with misleading potential - "0% and -". Please clarify.

In section regarding HCW perspective on immunization there are no quantitative data. There is only a figure and some qualitative considerations. Do you have any quantitative data regarding health care worker's perspective?

Discussion section could be amplified with considerations from international studies regarding HCW perspective and attitudes or with other stakeholders [slum authority/slum manager, politicians, economists, media-people, etc.] perspective on immunization.

Conclusion section should be rephrased entirely, because it duplicated **Results** section and brings only common-sense knowledge... You can say that "in spite of wide acceptance of EPI in our country, current coverage is below herd-immunity level because of several modifiable traits in parents (like those related to knowledge and communication, costs, etc.) or in HCW (like training program issues, scheduling and overload with other tasks...)"

Congratulations for the excellent and very actual selection of papers in **Reference** section. Please unify citation style - it would be great to delete formulations like "*Accessed on 23 July 23*" for papers in Medical journals, like citations : 1,7,8,10,11,13,14,15,16,17,19,20,21,22,23,24,25 and 26

You should use this formulation "*Accessed on 23 July 23*" for references like official documents from Portals or media publications, not Medical journals, like : 4,5,9,12 and 18.

This interesting paper could be improved.