PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	Qualitative assessment of caregiver experiences when navigating childhood immunisation in urban communities in Sierra Leone
AUTHORS	Jalloh, Mohamed; Patel, Palak; Sutton, Roberta; Kulkarni, Shibani; Toure, Mame; Wiley, Kerrie; Sessay, Tom; Lahuerta, Maria

VERSION 1 – REVIEW

REVIEWER	Abbott, Penelope Western Sydney University, School of Medicine
REVIEW RETURNED	08-Nov-2021

GENERAL COMMENTS	Thank you for this very interesting and well written paper. I thought it brought forward many interesting angles to try and improve immunisation rates in Sierra Leone and described the context and considered potential solutions very well. I have some minor comments for your consideration. 1. The methods section was appropriately detailed and well expressed. However I was somewhat confused by the use of both IPA and content analysis as described in section 2.3. Although you did describe your approach as informed by IPA, it was not clear to me where the theoretical guidance from IPA was demonstrated, as your results and discussion were descriptive and practical and appeared to be the results of content analysis. I think it is clear that IPA was used in the development of your interview schedule and in the goals of the research. You could consider changing the wording in the first sentence in section 2.3 to clarify how IPA theoretical guidance affected the analysis. 2. I found the results well presented and the tables worked well to illustrate your work. The discussion flowed well and made useful observations. I did expect some elucidation of the problem you had delineated in the introduction that first dose vaccination rates were high but 2nd doses were very low. This was not addressed in your paper but I would have liked to know if your research had any explanations or suggestions on this. 3. Page 7 line 7-9 typo with repetitiveness.

REVIEWER	Brewer, Sarah University of Colorado Anschutz Medical Campus, Family Medicine, ACCORDS
REVIEW RETURNED	17-Jan-2022

GENERAL COMMENTS	This manuscript explores the experiences of caregivers in getting their children immunized in Sierra Leone. This studies identifies some key areas of challenge for these families. There are a few areas of potential improvement for the manuscript.

	Introduction: 1. A description of the Caregiver Journey Framework is needed for the reader to understand how this informed this research question. What does the framework include? This could be briefly outlined here if the operationalization is described in detail in the methods. Methods: 2. Two group comparisons are being made: urban vs. slum residents and vaccinated vs. under vaccinated. It appears, though, that means each combination then has only 4 cases interviewed. The authors should speak to the sample and the criteria for halting data collection (e.g., thematic saturation?) and how that was sufficient for comparisons across groups (or not). - similarly unclear is whether the authors used purposive sampling or snowball sampling. Snowball sampling should have not been necessary if the 2 families per community purposively selected with the CHWs were successfully recruited. This should be better explained. In either case, purposive criteria for CHW or household referrals should be described here, e.g., what kind of families were they asked to refer? What eligibility criteria did the data collectors screen for? 3. line 32-34 - 92% is listed twice for non-slum areas. 4. Comparisons for coverage of DPT and 2nd dose of measles are presented as if they are disparities, but the authors are not explicit about this. The coverage rates are close enough that disparities may not actually exist. Please clarify. 5. How were debriefing notes used to inform analysis? Were they part of the analytic dataset or were they used to inform memos and coding? 6. Who transcribed the interviews (interviewers or other team members)? Into Krio and then English, or directly into English? Were any backtranslated for accuracy checks? 7. Were analysts of the local team or a CDC team? Was the third "blind" coder local? What process (e.g., participant checking? data collector review? other?) was used to ensure the analysis team's interpretations aligned with local culture and experience? Results 8. I expected more information about participants (age of children, gender and age of caregiver interviewed, fully vaccinated vs. missed or late doses, etc). You mention in the methods you were looking for breadth of experiences, but the cannot be assessed without more information about your sample. 9. Overall, the themes and Categories (sub-themes) are described with little detail. Richer description of some areas and more overarching interpretation would help make this section more valuable. Quotations should be used to back up the theme or idea presented and then interpreted in the local context - most quotations in this results section could use more framing and interpretation to give the full richness of the findings. 10. Table 1 categories do not align with themes/sub-themes presented in the text. This seems to be true of other themes also - consider aligning for clarity throughout. 11. Theme 3 seems to be two different themes - one aligns with the decision-making and planning domain you reference in the methods; the other with negative experiences of vaccination process and side effects. Consider if these are one theme or two and how to discusss the interconnectedness if they are in fact one theme emergent from the data.

	Discussion 12. page 14 lines 43-48: Resilience in devising ways to get children vaccinated is not discussed in the results - where does the data support this? 13. page 15 lines 3-5: morality of vaccination references 25-28 - this should be discussed in terms of local cultural morality. Does the literature cited address moral expectations in the context of Sierra Leone (S.L.)? What moral constructs might drive the moral values that encourage vaccination in S.L.? Do the arguments for/against vaccination on moral grounds align with local values? 14. page 15 lines 6-10: I do not follow the authors' argument that there was moral motivation for refusals. The presented data did not appear to support this and the descriptions lead me to think that this decision was driven more by fear and distrust. This should be fleshed out better or reframed.

VERSION 1 – AUTHOR RESPONSE

REVIEWER 1
Thank you for this very interesting and well written paper. I thought it brought forward many interesting angles to try and improve immunisation rates in Sierra Leone and described the context and considered potential solutions very well. I have some minor comments for your consideration.
RESPONSE: We thank the reviewer for the positive feedback and comments to help improve the manuscript.

1. The methods section was appropriately detailed and well expressed. However, I was somewhat confused by the use of both IPA and content analysis as described in section 2.3. Although you did describe your approach as informed by IPA, it was not clear to me where the theoretical guidance from IPA was demonstrated, as your results and discussion were descriptive and practical and appeared to be the results of content analysis. I think it is clear that IPA was used in the development of your interview schedule and in the goals of the research. You could consider changing the wording in the first sentence in section 2.3 to clarify how IPA theoretical guidance affected the analysis.
RESPONSE: We appreciate the feedback. To clarify, interpretative phenomenology informed the study design and questionnaire development. In addition, during the analysis, we analysed each transcript separately and created an individual profile for each caregiver, with guidance from interpretative phenomenology. This is the within case analysis that we are referring to in section 2.3. The cross-case analysis and coding of the manuscripts followed qualitative content analysis. Instead of trying to strictly fit our analysis into one approach over the other, we have now focused on more clearly describing what we did in our analysis.

2. I found the results well-presented and the tables worked well to illustrate your work. The discussion flowed well and made useful observations. I did expect some elucidation of the problem you had delineated in the introduction that first dose vaccination rates were high but 2nd doses were very low. This was not addressed in your paper but I would have liked to know if your research had any explanations or suggestions on this.
RESPONSE: Thank you for pointing this out. We did not directly assess the specific reasons for vaccination dropout in our assessment. Nevertheless, based on our qualitative data, we did not find a singular reason for dropout. However, the insights from the caregiver experience suggest that the reasons for under-vaccination (including dropout) are layered and complex. A mix of practical

constraints (e.g., getting to the clinics and inconvenience at the clinics), unfavourable practices by health workers (e.g., monetary expectations) and safety concerns propagated under-vaccination.

COMMENT: 3. Page 7 line 7-9 typo with repetitiveness.
RESPONSE: We are having a hard time identifying the specific typo the reviewer is referencing. However, we have done another round of copy-editing that hopefully addressed the referenced typo.

REVIEWER 2

COMMENT: This manuscript explores the experiences of caregivers in getting their children immunized in Sierra Leone. This study identifies some key areas of challenge for these families. There are a few areas of potential improvement for the manuscript.
RESPONSE: We thank the reviewer for the positive feedback and comments to help improve the manuscript.

Introduction:

COMMENT: 1. A description of the Caregiver Journey Framework is needed for the reader to understand how this informed this research question. What does the framework include? This could be briefly outlined here if the operationalization is described in detail in the methods.
RESPONSE: The Caregiver Journey Framework is a loose organizing framework developed by UNICEF and other stakeholders to understand enablers and barriers of in accessing health services in low and middle-income country settings. It is not a conceptual or theoretical framework. As part of this assessment, we operationalized the framework into a qualitative inquiry focusing on caregiver experiences to explore and explain underlying barriers and facilitators of vaccination. We published a prior paper that delves into how the Caregiver Journey was operationalized in the context of urban immunization in Sierra Leone: https://gh.bmj.com/content/6/5/e005525. Moreover, we have added the following to the last paragraph of the introduction: “Implementation experiences from operationalizing the framework in the context of urban immunization has been described elsewhere.[11] The framework was operationalized into several domains to understand decision-making and preparation for vaccination visits, making the journey to clinics, experiences during vaccination visits, and post-vaccination experiences. Building on these domains, we aimed to describe here the lived experiences of caregivers of vaccine-eligible children as they navigate urban immunisation services in Sierra Leone to identify vaccination enablers and barriers.”

Methods:

COMMENT: 2. Two group comparisons are being made: urban vs. slum residents and vaccinated vs. under vaccinated. It appears, though, that means each combination then has only 4 cases interviewed. The authors should speak to the sample and the criteria for halting data collection (e.g., thematic saturation?) and how that was sufficient for comparisons across groups (or not).
RESPONSE: We detailed various sampling considerations for the Immunization Caregiver Journey Interviews, including the issue of saturation, in the paper published in BMJ Global Health (https://gh.bmj.com/content/6/5/e005525). However, we agree with the reviewer that we need to at least summarize key aspects of this approach in determining saturation, which is what we have now done. We have added the following text to be beginning of section 2.2 on sampling and data collection:

“The sample size for this qualitative assessment was guided by an approach that focuses on qualitative information power.[21] The concept of information power posits that researchers should determine the sample size in a qualitative assessment based on the aim (narrow versus broad), sample specificity (targeting specific group versus multiple groups), theoretical underpinning

(application of theory or no theory), quality of dialogue (weak or strong), and analysis strategy (within-case only or cross-case). Sample size burden increases when the aim is broad, multiple groups are targeted in the sample, the assessment is theory-driven, the quality of the dialogue is weak, and transcripts are analysed using cross-case analysis. In our assessment, the aim was narrow, the sample targeted a specific group, we applied theory to guide the assessment, the transcripts contained rich information, and we conducted both within-case and cross-case analyses. Against these considerations, we interviewed 16 caregivers and progressively reviewed debrief notes from the interviews to assess information power. In analysing the transcripts, we concluded that we reached saturation with the 16 interviews and likely could have stopped interviewing after the 12th interview."

COMMENT: Similarly unclear is whether the authors used purposive sampling or snowball sampling. Snowball sampling should have not been necessary if the 2 families per community purposively selected with the CHWs were successfully recruited. This should be better explained. In either case, purposive criteria for CHW or household referrals should be described here, e.g., what kind of families were they asked to refer? What eligibility criteria did the data collectors screen for?
RESPONSE: We have clarified the balancing of purposive versus snowball sampling in the assessment. Purposive sampling was the primary approach while snowball sampling was the secondary approach within the purposive approach. In communities where the CHWs were able to assist the team to purposively identify and recruit two caregivers, then snowball sampling was never used. However, snowball sampling occurred under two scenarios. First, caregivers purposively identified by CHWs may decline to interview for various reasons. In such instances, they may point the team to other caregivers with vaccine eligible children. Second, CHWs may only be successful in identifying 1 eligible caregiver in the community and then the team used snowball sampling to identify the second caregiver.

We have added the following to the sampling and data collection section:
"We purposively recruited the caregivers from eight communities in the WAU district, four of which were slums and four were other urban areas in the district to maximize variation in the sample. Within each community, two caregivers of children ages 6-36 months were purposively selected to capture a breadth of caregiver experiences—one whose child was fully vaccinated for age and another whose child had missed at least one scheduled vaccination visit. CHWs supported data collection teams in visiting households to identify and recruit eligible caregivers in the selected communities. Snowball sampling was used as a secondary sampling strategy when the first identified caregiver declines to interview but may know of other caregivers in the community with vaccine-eligible children or when CHWs were only successful in identifying just one eligible caregiver. In this form of snowball sampling, a previously visited household with an eligible child would point data collectors to other households with potentially eligible children (i.e., vaccine eligible children). Data collectors visited such households to screen for eligibility. This process continued until two caregivers of eligible children were successfully recruited and interviewed from a particular community. Interviews were conducted on the same of day of recruitment after obtaining informed consent from the caregiver."

COMMENT: 3. line 32-34 - 92% is listed twice for non-slum areas.
RESPONSE: We have addressed the typo.

COMMENT: 4. Comparisons for coverage of DPT and 2nd dose of measles are presented as if they are disparities, but the authors are not explicit about this. The coverage rates are close enough that disparities may not actually exist. Please clarify.
RESPONSE: To clarify, we tried to highlight differences in vaccination uptake in slum and non-slum communities to explain our rationale for selecting children from both slum and non-slum communities. We noted a lower DPT3 coverage in slum areas (86%) compared to non-slum urban areas (92%). However, we noted that there was no statistically different coverage for MCV2 in slums (33%) versus

non-slum urban areas (29%). The lack of a difference in MCV2 may be due to overall low uptake of MCV2 in Sierra Leone.

COMMENT: 5. How were debriefing notes used to inform analysis? Were they part of the analytic dataset or were they used to inform memos and coding?
RESPONSE: We have added the following clarification to section 2.2:

“The debrief notes were not part of the formal analysis. However, during the field work, the debrief notes were used to progressively assess data saturation and to identify key insights emerging from the interviews. We used the insights from the debrief notes to develop a preliminary report that was mostly in a descriptive, narrative form. The de-identified preliminary report was shared with the Ministry of Health and Sanitation.”

COMMENT: 6. Who transcribed the interviews (interviewers or other team members)? Into Krio and then English, or directly into English? Were any backtranslated for accuracy checks?
RESPONSE: The interviews were transcribed by the same locally trained staff who conducted the interviews as part of the assessment. The interviews were directly transcribed into English. The simultaneous translation-transcription process was done in pairs. The two staff consulted each other during the translation and when needed they consulted a locally trained supervisor to address translations that were flagged for needing confirmation. All staff involved in the translation-transcription process were fluent in Krio and English with at least a Bachelor’s level degree in social sciences / humanities.

The transcripts were not back-translated due to resource constraints. We have highlighted this as a limitation by saying that:
“…it is possible that some nuanced meaning may have been lost when translating the audio recordings from Krio to English—especially since the transcripts were not back-translated from English to Krio due to resource constraints.”

COMMENT: 7. Were analysts of the local team or a CDC team? Was the third "blind" coder local? What process (e.g., participant checking? data collector review? other?) was used to ensure the analysis team's interpretations aligned with local culture and experience?
RESPONSE: The analysis took place in several stages. The lead author (MJ) was involved in all stages. Although MJ works with CDC, he is from Sierra Leone and has been conducting social behavioural assessments in Sierra Leone since 2012. MJ together with the ICAP-Sierra Leone team worked with locally trained team to conduct the preliminary analysis based on the debrief notes. Once the transcripts were ready, MJ and PP read all transcripts closely as part of the immersion stage. PP and MJ coded the transcripts as described in the manuscript. The third ‘blinded’ coding was done by KW who is based outside of Sierra Leone but has strong background in qualitative research and was able to flag different interpretations to meaning units that helped informed the coding scheme.

Results
COMMENT: 8. I expected more information about participants (age of children, gender and age of caregiver interviewed, fully vaccinated vs. missed or late doses, etc). You mention in the methods you were looking for breadth of experiences, but the cannot be assessed without more information about your sample.

RESPONSE: We only collected limited demographic information that was going to be used in the analysis. As per the sampling design, half of the caregivers had children who were fully up-to-date, and the other half had children who were under-vaccinated. Moreover, we have now clarified that:

“All respondents were the biological mothers of the sampled children except for one female guardian. The median age was 9 months for the children included in the assessment.”

COMMENT: 9. Overall, the themes and Categories (sub-themes) are described with little detail. Richer description of some areas and more overarching interpretation would help make this section more valuable. Quotations should be used to back up the theme or idea presented and then interpreted in the local context - most quotations in this results section could use more framing and interpretation to give the full richness of the findings.

RESPONSE: We agree with the reviewer that additional interpretations and contextualization of the results could help strengthen the meaning of the themes. We were initially constrained by the journal’s wordcount. However, with this feedback, we have elaborated on the interpretations and contextualizing of the results before presenting illustrative quotes. We have restructured the themes into three themes: (1) enablers of childhood vaccination, (2) barriers related to childhood vaccination and (3) Recommendations to improve childhood vaccination. It is our hope that the journal will be ok with the increase in wordcount.

COMMENT: 10. Table 1 categories do not align with themes/sub-themes presented in the text. This seems to be true of other themes also - consider aligning for clarity throughout.

RESPONSE: We have updated the tables to align with the narrative text in the manuscript.

COMMENT: 11. Theme 3 seems to be two different themes - one aligns with the decision-making and planning domain you reference in the methods; the other with negative experiences of vaccination process and side effects. Consider if these are one theme or two and how to discuss the interconnectedness if they are in fact one theme emergent from the data.

RESPONSE: We agree with this interpretation and have updated the table and associated narrative text.

Discussion
COMMENT: 12. page 14 lines 43-48: Resilience in devising ways to get children vaccinated is not discussed in the results - where does the data support this?

RESPONSE: This was not directly reported in the manuscript text but was mentioned in several transcripts. For instance, when caregivers could not afford transportation, they opted to walk long distances (up to an hour in some instances) to get their children vaccinated.

COMMENT: 13. page 15 lines 3-5: morality of vaccination references 25-28 - this should be discussed in terms of local cultural morality. Does the literature cited address moral expectations in the context of Sierra Leone (S.L.)? What moral constructs might drive the moral values that encourage vaccination in S.L.? Do the arguments for/against vaccination on moral grounds align with local values?

RESPONSE: We do not have Sierra Leonean specific literature on vaccination morality. Hence, we are unable to strongly say what constructs might drive the moral values that encourage vaccination in Sierra Leone. Based on our results, it is driven by a sense of parental responsibility to the right thing for the child’s health with the anticipation that children would reciprocate such care to their parents later in life. We do not feel comfortable over-interpreting this finding. We have added that “However, additional research is necessary to generate a better understanding of the morality of childhood vaccination in the Sierra Leonean context.”

COMMENT: 14. page 15 lines 6-10: I do not follow the authors' argument that there was moral motivation for refusals. The presented data did not appear to support this and the descriptions lead me to think that this decision was driven more by fear and distrust. This should be fleshed out better or reframed.

RESPONSE: Fear and distrust certainly played a role, and do not necessarily contradict our current interpretation. The same way caregivers who vaccinated their children felt a parental responsibility to do the right thing, this caregiver also felt a parental responsibility to refuse vaccination, but for different reasons. She equally felt that she was doing the right thing, despite everyone telling her to vaccinate her children. She is further convinced that she has done the right thing because in the past her unvaccinated children grew up to be 'healthy' just like the vaccinated children. Distrust of the health system and fear of adverse effects reinforced the decision to not vaccinate her children.

VERSION 2 – REVIEW

REVIEWER	Abbott, Penelope Western Sydney University, School of Medicine
REVIEW RETURNED	21-Mar-2022

GENERAL COMMENTS	Thank you this is much improved. I agree that removing the reference to IPA and giving more details as to what was actually done in the methods has been effective. Your breaking up of the themes has also made this clearer. My comments are minor 1. I think it would be better to remove the 3rd dot point in the strengths and limitations section as it is covered by the 4th dotpoint. Consider whether the point re sampling bias should be placed here 2. P12 line 52 you have left in theme 2 there while removing it for theme 1

REVIEWER	Brewer, Sarah University of Colorado Anschutz Medical Campus, Family Medicine, ACCORDS
REVIEW RETURNED	22-Mar-2022

GENERAL COMMENTS	Thank you for your thorough edits to the manuscript. The authors have sufficiently addressed my concerns and comments on this manuscript and I recommend acceptance for publication.

VERSION 2 – AUTHOR RESPONSE

Kindly see our responses to the two comments below:

Comment 1: I think it would be better to remove the 3rd dot point in the strengths and limitations section as it is covered by the 4th dotpoint. Consider whether the point re sampling bias should be placed here.

Response: We have done so.

Comment 2: P12 line 52 you have left in theme 2 there while removing it for theme 1.

Response: We have done so.

Once again, we thank the reviewers for their diligent reviews of our manuscript.