Author's response to reviews

**Title:** Malaria-related perceptions and practices of women with under-five children in rural Ethiopia

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**Author's response to reviews:** see over
Reviewer’s report

Title: Malaria-related perceptions and practices of women with under-five children in rural Ethiopia

Version: 1 Date: 28 December 2008

Reviewer: Helen Bromley

Reviewer’s report:
‘Malaria-related perceptions and practices of women with under-five children in rural Ethiopia’

Wakgari Deressa and Ahmed Ali

Research Article submitted to BMC Public Health

This is an interesting article which examines an issue of great public health importance. The aim of the study is clearly defined: to investigate local perceptions, knowledge, practices and treatment-seeking behaviour for malaria, in Adami-Tulu District, South-Central Ethiopia. This was a mixed methods study, comprising a large community-based cross-sectional descriptive survey supplemented by 3 Focus Group Discussions in three different villages. The study population consisted of women with a child under the age of five, in Adami-Tulu District (n=2087). The study was carried out in 2003.

We would like to acknowledge the very fair assessment and constructive comments you made on our manuscript submitted to the journal of BMC Public Health. Based on your suggestions and comments, we have made important accommodations, and revised the manuscript accordingly. We respond to your comments point-by-point as follows:

Discretionary Revisions

1. I would challenge the penultimate sentence in the abstract, which states that “People, especially women, need to be educated on the link between mosquitoes and malaria.” It is well recognised that education alone will not change much. ITNs will have to be affordable and available as well. In addition, the nature of gender relations is paramount in women gaining access to goods and services. Men, as traditional heads of households and primary decision makers therefore need to be educated too, so that they too understand the importance of ITNs.

   • Thanks for the comments. We have completely modified the conclusion in the abstract section as follows: “Malaria was perceived as the main health problem among women and children. The use of malaria preventive measures was lower. A significant proportion of the respondents receive initial malaria treatments from CHWs, private care providers and public health services. A more concerted effort is needed for scaling-up the distribution of ITNs and improving the knowledge of the community about the link between malaria and mosquitoes. Effective antimalarial
drugs should also be available at the grassroots level where the problem of malaria is highly rampant”.

2. There should be a fuller description of what is mean by informed consent on page 7.
We further expanded the part on informed consent as presented as follows in the section of “Ethical considerations”:

- “Verbal informed consent was obtained from all respondents who participated in the study after explaining the purpose and objectives of the study in the local language. Participation in the study was voluntary and confidentiality of the information was assured both during and after data collection. The respondents were informed about their right either not to participate, not to answer any question or all of the questions”.

3. Data are mostly reported as simple proportions, supplemented by some quotes from the qualitative data. There is no mention of negative cases in the qualitative part of the study, nor any mention of how the data might be triangulated.
Thanks for the comments. As you rightly mentioned most of the findings of qualitative data included in this manuscript are positive cases. This is what we observed in this study although we found some misconceptions like associating malaria with the abundance of “eshet” and linking the cause of the disease to drinking dirty water on which mosquitoes breed and exposure to unhygienic areas. This section is further elaborated on Page 12.

4. There could be more discussion and fewer results.
- We emphasized on the discussion and reduced figures of the result which were actually presented in the discussion section.

5. There is a tendency to report recommendations and conclusions in the discussion section which would be better separated out.
Thanks.

- The following two sections in the result section “It was apparent that although mosquito bite was perceived as the main mode of malaria transmission, at the same time they had misconceptions about the transmission of the disease” (Page 12) and “During the first response to the illness, the respondents sought treatment mainly from CHWs and public health facilities. Non-public health facilities were important sources of antimalarial treatment during the first visits. During the second and third visits, public health facilities and private clinics dominated all other sources of care. However, the significance of CHWs declined rapidly during the second and third visits when the illness period got longer” (Page 16) were removed because they seem to be more of discussion than result.
- We also tried to trim from the discussion section those statements which are more closely related to results than discussion.
- The conclusions and recommendations are now made very clear and specific as follows: “The findings of this study indicate the importance of understanding
women’s perspective in community-based malaria prevention and control. The envisaged reduction in malaria morbidity and mortality will depend on the successful implementation of malaria control strategies through involving the local community. A more concerted effort is needed for scaling-up the distribution of ITNs, improving the knowledge of the community about the link between malaria and mosquitoes, causation of malaria and its preventive methods particularly on the proper utilization of ITN. One important area that must be given priority in the effective implementation of ITNs is considering the pivotal role of women in the community, since they could enhance the proper use of nets by their children as well as other family members. Effective antimalarial drugs should also be available at the grassroots level where the problem of malaria is highly rampant”.

6. Given that the data are 5 years old, and that ITNs have been mainstreamed more in this area since then, a follow-up study to examine the relative success – or not of ITNs would be useful.

- Thank you very much. We updated the literature particularly on ITNs by adding one paragraph on Page 19 as follows:

“The present study was conducted prior to the massive scale-up of ITNs in malaria endemic areas of Ethiopia. Since 2005, important steps have been under taken particularly to scale-up the implementation of ITNs in the country. A household cluster survey conducted in Oromia and Southern Nation, Nationalities and People Region (SNNPR) by the Carter Center in January 2007 revealed that 45.4% of the surveyed households in Oromia and 51.2% in SNNPR owned at least one mosquito net of any type and the coverage for at least one long-lasting insecticidal nets (LLINs) was 32.5% and 40.1%, respectively [43], indicating a ten-fold increase compared to the Demographic and Health Survey 2005 results of less than 1% in the two regions [44]. The national Malaria Indicator Survey carried out from October to December 2007 indicates that in areas below 2000m, about 65% of the households owned at least one LLIN [45].”

- We also included a sentence about the current deployment of health extension workers in Ethiopia at kebele levele on Page 20 as follows: “It is hoped that the current deployment of health extension workers in the country would result in improved anti-malaria interventions such as ITNs and ACTs at the grassroots level”.

Major compulsory revisions
7. The first three paragraphs of the methods section describe the study setting rather than the methods per se. They should be removed to a separate section entitled ‘Study Setting’.

- We further divided the methods section further into the following sub-sections for further elaboration: Study setting, sample size estimation and sampling methods, data collection, data analysis and ethical considerations.

8. 3708 households were visited and 2087 mothers with at least one child under the age of 5 were interviewed. It is unclear whether this represents 3708 households in total, of which 2087 contained mothers with a child less than five years old, or whether it represents 3708 households with a mother and child under 5, of which 2087 consented to take part in the study. Please clarify.
Thank you for the comments. We made clarifications on the statement in the 1st paragraph of the result section: “A total of 2087 mothers with at least one child under the age of 5 were identified and interviewed from the total 3708 visited households in 18 kebeles. About 44% of the households did not have a woman with a child under the age of 5 years.

9. There is no mention of the response rate- please include.

- Thank you very much for this question and we incorporated it in the 1st paragraph of the result section as follows: “Of the total women with at least one child <5, almost all participated in the study, representing a response rate of 97.6%”.

10. The qualitative data comprised three focus groups and in-depth interviews (page 7). There is no mention of who actually took part in the in-depth interviews, or how many were done, etc. There is no mention of how the topic guides and interview schedules were developed. The analysis of the qualitative data is weak, and there is no mention of quality assurance procedures or references that have guided the analysis of the data. Please address these issues.

- Thanks for the comments.
- In total, three FGDs and five in-depth interviews with mothers with under five child or children were conducted in this study.
- Pre-tested open-ended FGD and interview guides were used to collect data during FGDs and in-depth interviews, respectively. The discussions and interviews were moderated by the first author of this manuscript.
- We manually analyzed and summarized the qualitative data after making the verbatim transcription of all the tape-recorded information as indicated in the following paragraph available in the data analysis section of the manuscript: “The FGDs and in-depth interviews from the different groups were transcribed and analyzed manually along the major themes of the study. Verbatim transcriptions in Afan Oromo were made for all tape-recorded FGDs and in-depth interviews. The findings from the individual interviews and FGDs were presented in an integrated manner. Where appropriate, quotes that best explained the perceptions and practices of the mothers about malaria were identified and used in parallel with the quantitative information to elaborate more on the insights of the perceptions and practices of the community”.
- Field supervision was done by the field supervisors participated in this study. “Three supervisors who were experienced in field activities supervised the field work”.
- It should be noted that the qualitative data was used to supplement, cross check and further explore the data obtained through the qualitative research since quantitative data was the main focus of the study.

11. The limitations of the study must be included before the paper can be accepted for publication.

- Thanks. We have now included the limitations of the study by one paragraph on page 21 as follows: “Like all questionnaire-based cross-sectional studies, this study is limited by the self-reported data, which are susceptible to recall and information biases. We attempted to minimize these biases through piloting the questionnaire and
training of data collectors and field supervisors. The other limitation of the study is that malaria was assessed by the local term “busaa” where symptoms such as fever, headache, and vomiting might well have been due to other illnesses, resulting in misclassification problems. However, most malaria cases in Ethiopia are treated based on the signs and symptoms of the disease. Therefore, the significance of our study might be substantial as the study was conducted during peak malaria transmission”.

12. The paper needs to be proof read by a native English speaker. There is a tendency to write in very long sentences for example the paragraph at the bottom of page 4. The last two sentences of page 13 also needs to be made clearer. Bottom of page 14 – the English around CHWs needs clarifying - it reads as though the CHWs are telling the women to go and get malaria.

Thanks for your comments.

- We split the longest sentence at the last paragraph of page 4 as follows: “In Ethiopia, artemether-lumefantrine replaced sulfadoxine-pyrimethamine (SP) in 2004 due to the increasing resistance of malaria to SP [9,10]. However, there has been a great concern about the availability and affordability of the newly introduced drug for community-based malaria control interventions carried out by village-based community health workers (CHWs) and home-based management of malaria [11-14]”.

- The last paragraph on page 13 was also modified as follows: “Of the interviewed mothers, 40.1% (n=837) said that they had heard of mosquito net, and 78.4% said that its purpose was to kill mosquitoes, 65.9% replied that it protects against mosquito bite and 38.6% reported that it protects against malaria. About 2% did not know the purpose of mosquito net although they had heard about it. Only 14% (n=117) of households with respondents who heard about mosquito net possessed ITNs. This indicates that only 5.6% of all the surveyed households possessed mosquito nets. Of those households that possessed nets, 93.2% (n=109) owned one net, while 6.8% (n=8) possessed two nets”.

- We modified the sentence on the bottom of page 14 as follows: “Nineteen (3%) of them had known about their malaria illness after being diagnosed by CHWs and only 0.8% was told by a family member”.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Needs some language corrections before being published

- The native English speaker commented on the language used in this manuscript. In addition, we tried to improve the English in the revised manuscript as much as possible.

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests: I declare that I have no competing interests’ below.
Review

Thank you for the opportunity to review this interesting paper. I suggest that all of the following are Major Compulsory Revisions

Malaria-related perceptions and practices of women with under-five children in rural Ethiopia

We would like to acknowledge the very fair assessment and constructive comments you made on our manuscript submitted to the journal of BMC Public Health. Based on your suggestions and comments, we have made important accommodations, and revised the manuscript accordingly. We respond to your comments point-by-point as follows:

1. Is the question posed by the authors well defined?
The aim of this study was clear and well defined, and also well justified in the study background.
Thank you!

2. Are the methods appropriate and well described?
The methods need further description, referencing and justification. Why mixed methods? How did you calculate your sample size? What process did you use to randomly select kebeles? Why 18 /62 kebeles? Why interview all of the women?

- The comments are well taken. We made further elaborations on the sample size estimation and sampling methods by giving additional reference and inserting a separate section under “Sample Size Estimation and Sampling Methods” as follows: “The details of the sample size calculation and sampling techniques was published somewhere else [32,33]. In short, the sample was estimated at 2270 households with at least one <5 child assuming an expected prevalence of malaria illness 30% and 3.5% margin of error at 95% confidence level. Briefly, eighteen of the 62 rural kebeles in the district were randomly selected, and all mothers/caretakers of the <5 children were interviewed by house-to-house. Finally, interviewed mothers in the reproductive age group (15-49 years) with at least one <5 child were separately analyzed and used for the preparation of this manuscript”.

- In addition, the methods section is further divided into the following sub-sections for further elaboration: Study setting, sample size estimation and sampling methods, data collection, data analysis and ethical considerations.
• The mixed methods (quantitative and qualitative) to gain further understanding on knowledge, perceptions and practices of the women about malaria prevention and control. The quantitative data was the main data used for this study and supplemented by the qualitative data.

• Based on geographical homogeneity, all rural kebeles in the district were stratified into three strata, and six were randomly selected from each stratum. We thought that 18 kebeles were adequate to give us the sample size desired for this study. Kebele was selected as a sampling unit because the number of households was relatively high allowing adequate sample size to be obtained and it was also simple to approach the community using the government structure such as kebele.

• We interviewed all women found in the selected kebele and eligible for this study since we used a cluster sampling method.

Can you explain in more detail how women were selected to participate in the FGDs. Were there any specific criteria you were looking for? Did you try to get representational diversity in your sample – for example younger and older mums, mums with only one or with more children? Any minority cultural groups represented?

• We elaborated more on the selection of the participants of FGDs and in-depth interviews, and presented it as follows: “The participants of the FGDs and in-depth interviews were purposively selected through discussions with community leaders and village coordinators”.

• We did not do such further breakdowns of the criteria for inclusion of mothers in FGDs or in-depth interviews. The main criteria used were whether the women were in the reproductive age group and having under five child or children.

How did you analyze your focus group discussion data?

• We manually analyzed and summarized the qualitative data after making the verbatim transcription of all the tape-recorded information as indicated in the following paragraph available in the data analysis section of the manuscript: “The FGDs and in-depth interviews from the different groups were transcribed and analyzed manually along the major themes of the study. Verbatim transcriptions in Afan Oromo were made for all tape-recorded FGDs and in-depth interviews. The findings from the individual interviews and FGDs were presented in an integrated manner. Where appropriate, quotes that best explained the perceptions and practices of the mothers about malaria were identified and used in parallel with the quantitative information to elaborate more on the insights of the perceptions and practices of the community”.

3. Are the data sound?
The data appear to be sound, and interesting. A few of queries:
- The authors report data in means (for example mean age of mothers). Was the data normally distributed - or should the data be reported using medians?
- The age distribution was found to be normal with both the mean and median of 27 years (ranging from 16 -50 years). Therefore, we chose to present mean age rather than the median.
- Were there any differences in knowledge or perceptions regarding malaria by age, or by level of education? You have a large sample size, and using cross tabs you might be able to give a clearer idea of who especially needs to be targeted – (younger mums? Mums with less education? etc)
Thanks for the comments. We agree that analyzing the data to assess the relationship between educational levels of mothers and their knowledge/practice about malaria would have been possible. However, we did not do this analysis because the positive association between the two variables has been revealed by several studies and we would not generate a novel association. We devoted one paragraph in discussion to discuss about the relationship of the two variables on Page 18 last paragraph.

- On page 8 you mention that malaria was the main childhood health problem frequently reported. What other health problems were reported? Diarrhoea? ARIs? Malnutrition?
  • This information is clearly presented in Table 2. We were not interested to present text the details of data presented in Tables.

- On page 18 you state that mothers had a low level of education ( <15% ). What does this mean?
  • Only 13.2% of the women participated in this study had educational level of “read only” or “above that” (Table 1). In the above statement we tried to emphasize this low level of education and the need to raise it for the benefit of the society in general.
    Now we canceled the figure of <15% and rephrased the statement as indicated here: “Despite the study participant’s higher knowledge about malaria, their low educational level implies the need to intensify the expansion of schools for raising the level of women’s education”.

- Qualitative data can be used to cross check and further explore findings from quantitative research. This relationship - between quantitative and qualitative data could have been made clearer.
  • Thank you for the comments. We incorporated this statement in the section of data collection as follows: “The qualitative data were used to supplement, cross check and further explore the quantitative findings”.

- On page 11 you state that ‘the majority’ of women int eh FGs associated malaria with mosquitoes. In qualitative data it is not usually acceptable to state ‘majority’ as this implies statistical analysis. You might say ‘most’
  • Thank you. We corrected it as suggested.

4. Does the manuscript adhere to the relevant standards for reporting and data deposition?
   Overall this was fine.
   It might be useful to include some of the characteristic data from the mothers in a table: age, education, incidence of malaria etc.
- The socio-demographic characteristics such as age, religion, education, etc are already presented in Table 1.
- The prevalence of malaria during the three months recall period was 30.5%. This statement is indicated in the result section, at the bottom of the 1st paragraph of the subsection “Mother’s experience of malaria and treatment seeking behaviour”. We limited the number of Tables since many tables would not be recommended for publication.

5. Are the discussion and conclusions well balanced and adequately supported by the data?
The discussion was well written and explored the issues well with reference to the literature. Again – it would have been useful to more clearly compare the data obtained using qualitative and qualitative methods – and explore any discrepancies with reference to the literature.

Thanks.

- We tried to integrate and compare the quantitative and qualitative data in the results section and now hope that the flow of the information is holistic for the readers.
- The following two sections in the result section “It was apparent that although mosquito bite was perceived as the main mode of malaria transmission, at the same time they had misconceptions about the transmission of the disease” (Page 12) and “During the first response to the illness, the respondents sought treatment mainly from CHWs and public health facilities. Non-public health facilities were important sources of antimalarial treatment during the first visits. During the second and third visits, public health facilities and private clinics dominated all other sources of care. However, the significance of CHWs declined rapidly during the second and third visits when the illness period got longer” (Page 16) were removed because they seem to be more of discussion than result.
- We also tried to trim from the discussion section those statements which are more closely related to results than discussion.
- We emphasized on the discussion and reduced figures of the result which were actually presented in the discussion section.

The conclusions need to be made more forceful- with clear recommendations of exactly what should be prioritized in health education and disease prevention efforts.
The conclusions and recommendations are now made very clear and specific as follows:
“...The findings of this study indicate the importance of understanding women’s perspective in community-based malaria prevention and control. The envisaged reduction in malaria morbidity and mortality will depend on the successful implementation of malaria control strategies through involving the local community. A more concerted effort is needed for scaling-up the distribution of ITNs, improving the knowledge of the community about the link between malaria and mosquitoes, causation of malaria and its preventive methods particularly on the proper utilization of ITN. One important area that must be given priority in the effective implementation of ITNs is considering the pivotal
role of women in the community, since they could enhance the proper use of nets by their children as well as other family members. Effective antimalarial drugs should also be available at the grassroots level where the problem of malaria is highly rampant”.

6. Are limitations of the work clearly stated?
This needs further development.
- Thanks. We have now included the limitations of the study by one paragraph on page 21 as follows: “Like all questionnaire-based cross-sectional studies, this study is limited by the self-reported data, which are susceptible to recall and information biases. We attempted to minimize these biases through piloting the questionnaire and training of data collectors and field supervisors. The other limitation of the study is that malaria was assessed by the local term “busaa” where symptoms such as fever, headache, and vomiting might well have been due to other illnesses, resulting in misclassification problems. However, most malaria cases in Ethiopia are treated based on the signs and symptoms of the disease. Therefore, the significance of our study might be substantial as the study was conducted during peak malaria transmission”.

7. Do the authors clearly acknowledge any work upon which they are building, both published and unpublished?
This could also have been more clearly conveyed.

8. Do the title and abstract accurately convey what has been found?
This was clear.
- Thanks

9. Is the writing acceptable?
Yes- the writing was fine.

A few specific points below:

Page 6: Muslim denomination. I believe this is inaccurate. Muslim is not a denomination, but is the word to describe followers of Islam. You might more accurately state that the ‘population was primarily Muslim’.
- We modified the sentence as follows: “The people are predominantly subsistence farmers belonging to the Oromo ethnic group and are primarily Muslims”.

By the way – what percent were Muslim?
- 91.1% of the respondents were Muslims (Table 1).
Level of interest: An article of importance in its field

Quality of written English: Needs some language corrections before being published
  - The native English speaker commented on the language used in this manuscript. In addition, as much as possible we tried to improve the English in the revised manuscript.

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests: 'I declare that I have no competing interests'

Reviewer’s report

13 April 2009

Title: Malaria-related perceptions and practices of women with under-five children in rural Ethiopia

Version: 1 Date: 12 January 2009
Reviewer: Mohammed Yassin

Reviewer’s report:
The article "Malaria-related perceptions and practices of women with under-five children in rural Ethiopia" is well written and the findings are relevant for the effort to control malaria especially in more vulnerable group; women and young children. However, I have some comments for authors to address:

We would like to acknowledge the very fair assessment and constructive comments you made on our manuscript submitted to the journal of BMC Public Health. Based on your suggestions and comments, we have made some important accommodations, and revised the manuscript accordingly. We respond to your comments point-by-point as follows:

Major Compulsory Revisions
The data was collected 5 years ago and some of the recommendation included in this study are outdated as several changes, including ITN, ACT and community based malaria prevention are already incorporated in the malaria control programme in the country.
  - Thank you very much. We updated the literature particularly on ITNs by adding one paragraph on Page 19 as follows:

“The present study was conducted prior to the massive scale-up of ITNs in malaria endemic areas of Ethiopia. Since 2005, important steps have been under taken particularly to scale-up the implementation of ITNs in the country. A household cluster
survey conducted in Oromia and Southern Nation, Nationalities and People Region (SNNPR) by the Carter Center in January 2007 revealed that 45.4% of the surveyed households in Oromia and 51.2% in SNNPR owned at least one mosquito net of any type and the coverage for at least one long-lasting insecticidal nets (LLINs) was 32.5% and 40.1%, respectively [43], indicating a ten-fold increase compared to the Demographic and Health Survey 2005 results of less than 1% in the two regions [44]. The national Malaria Indicator Survey carried out from October to December 2007 indicates that in areas below 2000m, about 65% of the households owned at least one LLIN [45].

- We also included a sentence about the current deployment of health extension workers in Ethiopia at kebele level on Page 20 as follows: “It is hoped that the current deployment of health extension workers in the country would result in improved anti-malaria interventions such as ITNs and ACTs at the grassroots level”.

Minor Essential Revisions

Abstract: the first three sentences look discussion/conclusion. The conclusion seems not based on the main findings presented in the result section. Where is the evidence that Coartem® is not available at the community level?

- Thanks for the comments. We have completely modified the conclusion in the abstract section as follows: “Malaria was perceived as the main health problem among women and children. The use of malaria preventive measures was lower. A significant proportion of the respondents receive initial malaria treatments from CHWs, private care providers and public health services. A more concerted effort is needed for scaling-up the distribution of ITNs and improving the knowledge of the community about the link between malaria and mosquitoes. Effective antimalarial drugs should also be available at the grassroots level where the problem of malaria is highly rampant”.

Method: page 6, par 1, line 6: “Kebeles” not towns

- Kebeles in Ethiopia generally include both rural (rural kebeles) and urban areas (urban kebeles). We modified the statement as follows: “The district is administratively organized into 62 rural and four urban kebeles (lowest administrative unit)”.
- We further divided the methods section further into the following sub-sections for further elaboration: Study setting, sample size estimation and sampling methods, data collection, data analysis and ethical considerations.

Result:

Page 8, para 1, line 11 “Open field defecation” cannot be considered as a type of “toilet facility”, should be rephrased.

- Thank you for the comments. We have rephrased the statement as follows: “Almost all (99.1%) of the study households did not have a toilet facility at the time of the study”.

Page 9, para 2, line 5; change to “Very few mother (<1%) knew none of the symptoms malaria”

- Accepted and corrected as suggested
Page 10, para 3, line 1: delete the first sentence “Mothers’ perception....”
  • Accepted and corrected as suggested

Page 11, para 1, line 5: who/how many are these “Others”?
  • Thank you very much for the comment. We rearranged the whole paragraph and presented it as follows:
    • “Most respondents (81%) said that malaria could be transmitted from one person to another. About 60% of the women perceived that malaria is transmitted by mosquitoes, followed by a response that incriminated sleeping together (38.7%) with a malaria patient as a cause for the disease. Other respondents also mentioned breathing from malaria patient (16.9%) and exposure to swampy areas and cold weather (4.9%) as a cause of malaria. Nearly 1% of the respondents who reported the transmissibility of malaria did not know how it is transmitted, while 9% said that either malaria could not be transmitted from one person to another or gave “did not know” responses”.

Page 11, para2, the last sentence (“It was apparent...”) could move to discussion and the same for the second sentence in page 15, para 1.
  • Thank you. We moved them to the discussion as suggested

Page 15, para2: delete the second part of the last sentence; “while visits...”
  • Thank you. We deleted it as suggested

Discussion
Page 18, para 1: was there any association with education level of the mothers and their perception/knowledge/practice related to malaria from this study? Although I agree that low education status is a bottleneck for most of the activities in such communities.
Thanks for the comments. We agree that analyzing the data to assess the relationship between educational levels of mothers and their knowledge/practice about malaria would have been possible. However, we did not do this analysis because the positive association between the two variables has been revealed by several studies and we would not generate a novel association. We devoted one paragraph in discussion to discuss about the relationship of the two variables on Page 18 last paragraph.

Page 19, para 2, line 4-6. The second part of the sentence seems contradicting and misleading (...suggesting that an even greater proportion of people do not seek care from the public health sector). Even the CHWs are considered as part of the public health sector by many.
  • Thanks. We rephrased the statement as follows: “Nearly 50% of the mothers first sought treatment for malaria from a health facility, suggesting that about half of the people with malaria do not seek care from the public health sector”.

Level of interest: An article whose findings are important to those with closely related research interests
Quality of written English: Acceptable
- The native English speaker commented on the language used in this manuscript. In addition, as much as possible we tried to improve the English in the revised manuscript.

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:
I declare that I have no competing interests.