



## Letter to the Editor

**Practical approaches to interpretation of findings from a systematic review and network meta-analysis on efficacy and resistance of different artemisinin-based combination therapies**


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*Dear Editor,*

A systematic review and meta-analysis study was published in the Parasitology International journal regarding the efficacy and resistance of different artemisinin-based combination therapies [1]. This study, authored by Mathenge and colleagues explored the efficacy of combination therapies and associated resistance mechanisms. The study is robust and offers opportunities for future clinical decision making. However, some aspects of the study require consideration before the practical applicability of this study is considered.

**Random-effects model is deal for meta-analysis?**

First and foremost, a major issue is with the methodology of the study. Wherein, as observed in Figs. 3 and 5 of Mathenge et al.'s study, they use the Fixed-effects model to compare all ACTs. For the parameters of the study, it is appropriate to use the Random-effects model, in consideration of the inherent heterogeneity between the results of individual studies [2].

**Appropriate effect size estimation RR or SMD?**

We also note that the effect size metric used to pool the results, the Risk Ratio (RR), may not be the most appropriate. As the study is assessing the efficacy of different treatment modalities, Standard Mean Difference (SMD) may serve as a better effect size metric for this study [3,4].

**Publication bias indicators are crucial for literature-based meta-analysis?**

We also observed that the authors had not mentioned the relative study weights in their meta-analyses, as observed in figs. 3, 4 and 5. With figs. 7 and 8, they are not depicting any assessment of publication bias. Considering the importance of study weights (as it highlights the value assigned to each study during analysis), and publication bias (as it

is inherent to all meta-analysis, with high bias undermining the results of the study), not highlighting them leads to the study's practical applicability being greatly hampered [5].

We hope that the authors consider the points mentioned above, as it will only serve to bolster and elevate the value of this critical study conducted by Mathenge et al.

**Ethics approval and consent to participate**

Not applicable.

**Consent for publication**

Not applicable.

**Availability of data and materials**

Not applicable.

**Declaration of Competing Interests**

We declare no competing interests.

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**Authors' contributions**

RJ predominantly conceived this review and led the development of the letter to the editor. Both RJ, CK and MRM wrote the first draft of the letter, critically revised and edited successive drafts of the manuscript. RJ, CK and MRM read and approved the final version of the manuscript.

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