Reviewer's report

Title: Comparison of Bayesian and frequentist group-sequential clinical trial designs

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Reviewer: Haitao Pan

Reviewer's report:

To compare Bayesian and Frequentist group sequential design in later phase is still limited in literature. Though the authors' simulation was not comprehensive and only focused on continuous endpoint by using just the linear alpha spending function, the findings are still interesting. The most striking one would be if the Bayesian critical values at different looks are restricted to be equal, O'Brien and Fleming's design corresponds to a Bayesian design with an "exceptionally information negative prior" are very similar. This finding looks awkward to the Bayesian and contrary to the intuition since people would think that a non-informative prior would produce similar results to the Frequentist if the sample size is sufficient for example in late phase trials, therefore, if the authors can dig a little bit the reason why this happens theoretically, it would be more convincing to the society.

Though most of the conclusions were based on rigorously derivations, I think the following sentence in the Abstract-Conclusions is somewhat misleading, "... and only the frequentist group-sequential design can control the type I error rate for all values of the control group treatment effect". The real thing would be that the Bayesian cannot control the type I error rate only because if the same stopping rule of Frequentist applies to the Bayesian, otherwise, the Bayesian can of course control the type I error rate if it chooses rules based on simulations. If the authors can consider to rephrase it, it would be better.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

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Yes

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I am able to assess the statistics

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