Reviewer’s report

Title: Communicating projected survival with treatments for chronic kidney disease: patient comprehension and perspectives on visual aids

Version: 0 Date: 01 Mar 2017

Reviewer: Judith Covey

Reviewer’s report:

The submitted paper contains a number of methodological limitations which undermine its suitability for publication in its current form. These are listed below.

The different types of graphs convey different amounts of information. The Kaplan Meier curve and histogram convey information about survival rates from between 1 and 10 years whereas the pie chart and pictograph only convey information about the 5 year survival rate.

The pictograph is not a good example of the pictograph because you have one stick man to convey 10 people - and therefore have an issue with showing half a stick man to communicate the difference between the two options.

The correct answer provided in the multiple choice question to test comprehension was ambiguous. Options a) and b) state "That people who have a transplant before needing dialysis (after five years on dialysis) live longer". But graph only provides information about the numbers of people who live or die 5 years after dialysis and 5 in 100 more people will be alive 5 years after transplant if they have had the transplant after 5 years on dialysis. So 5 in 100 people will live longer but the answers provided imply that everyone will live longer - which is not strictly correct. The correct answer should therefore be stated as "That more people who have the transplant before needing dialysis are alive 5 years after the transplant".

The procedure states that participants were offered an explanation of each graph if requested but they do not present any data about how many participants requested an explanation for each graph type (which would have been extremely valuable data).

The chi2 test is not appropriate because the observations between the different conditions are not independent of each other - the study was a repeated measures design where each patient received one of each type of graph (independence of observations is a requirement of the chi2 test and each participant must only contribute data to one and only one cell in the chi2).

The study is underpowered to show a meaningful effect size. The authors used a sample size which would be sufficient to detect a 5% difference with 90% confidence but they apply a p-value of p<.05 to evaluate significance. As a consequence a potentially meaningful difference in the number of people correctly answering the multi-choice question between the pictograph and Kaplan Meier curve graphs is dismissed as not significant on the basis of a p-value of 0.06.
Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

No

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

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

No

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
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I recommend additional statistical review

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Needs some language corrections before being published

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